

# THE COAST ARTILLERY JOURNAL

## Features

Will of the Leader

—Tindall

Forty Years With the  
Artillery

Duke of Wellington

—Fuller

Has the Army Too  
Much Radio?

—Allison

NOVEMBER-DECEMBER  
1936

*The season's greetings*



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# THE COAST ARTILLERY JOURNAL

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# Greetings

## From The Chief of Coast Artillery To All Coast Artillery Personnel

**I**wish to take this opportunity to express to the officers and enlisted personnel of the Coast Artillery Corps, Regular Army, National Guard and Organized Reserves, my sincere appreciation of the fine work done and the results attained during the past year. These results speak for themselves but the spirit displayed, your willing cooperation at all times and your loyalty are worthy of special mention.

I wish you all a Merry Christmas and a Happy New Year with continuous health and progress.

A. H. Sunderland,  
Major General,  
Chief of Coast Artillery



# The Will of the Leader—Part I

By MAJOR RICHARD G. TINDALL  
*Infantry*

It is not the men that count in war, it is the man," said Napoleon. But that was more than a century ago. Today the talk is more about staffs and specialists and machines, and less about the impulse, magnetism, and inspiration of the leader. This tendency, coupled with wholesale motorization and the trend toward decentralization, may well create a dangerous state of mind. For once the leader has disposed his forces and published his initial orders, he may feel that his part has been played and that the issue now depends upon the execution, judgment, and initiative of his subordinates. Nowhere in history are the dangers of this attitude more startlingly illustrated than in the Marne Campaign. Nowhere does the necessity of conducting a maneuver *throughout* stand forth more clearly. And certainly the difficulties of control in the future are not likely to be greater than those which confronted von Moltke and Joffre.

It is the purpose of this series of articles to reconstruct the crucial days of that campaign as seen at the rival headquarters in order to show, first, that the influence of the leader is as vital as ever; second, that complicated mechanisms may be directed through simple principles; and third, that that new conditions of warfare merely require new methods of leadership.

Moltke started with a superior instrument of war and initial plan—not perfect, perhaps, but sound and good enough to win. Joffre started with an inferior instrument and an unsound plan. And yet the stronger army and the better plan went down in defeat. Let us see why.

\* \* \*

On the evening of August 25, 1914, Generaloberst Helmuth Johannes Ludwig von Moltke, Chief of the Great General Staff, breathed a sigh of relief in the

Army commanders, particularly royal highnesses, were hard to deal with.

Coblentz office of OHL.<sup>1</sup> He had not disgraced his illustrious uncle! Germany had undoubtedly won the great battle: a decision had been gained in the west!

For several days now, hopes had been soaring. On the evening of August 20 Prince Rupprecht's Sixth Army<sup>2</sup> had started the victory chorus—had advised of a "victorious battle in Lorraine" on the left wing of the German armies, and of "the capture of thousands of prisoners and many guns and machine guns." (Map 1.)

On August 22 von Heeringen's Seventh Army<sup>3</sup> had reported the strong enemy before it as having suffered heavy casualties and now being "in flight-like retreat and badly shaken morally."

On August 22 the Fifth Army<sup>4</sup> of the Imperial Crown Prince had reported "successful combats" in the region of Longwy, and by the next day this had turned into "complete victory."

On August 23 the Fourth Army<sup>5</sup> had chimed in from the Belgian Ardennes—"complete victory—capture of thousands of prisoners, among them generals, and very many guns." A few hours later the Fourth Army insisted further on the magnitude of its feat—"casualties of the enemy very considerable; enemy completely defeated."

Hausen's Third Army,<sup>6</sup> not to be outdone, reported on the same day that the enemy in its front south of Namur was "in complete retreat," and added that it was "pursuing."

All this had been glorious indeed—the German center and left victorious from the wooded Vosges to the Meuse. There was a little fighting left to be done; true, there was some mention of a French counter-attack on the



Generaloberst Helmuth Johannes Ludwig von Moltke, Chief of the Great General Staff

<sup>1</sup>Abbreviation for *Oberste Heeresleitung*, the German Supreme War Command, or military portion of German GHQ.

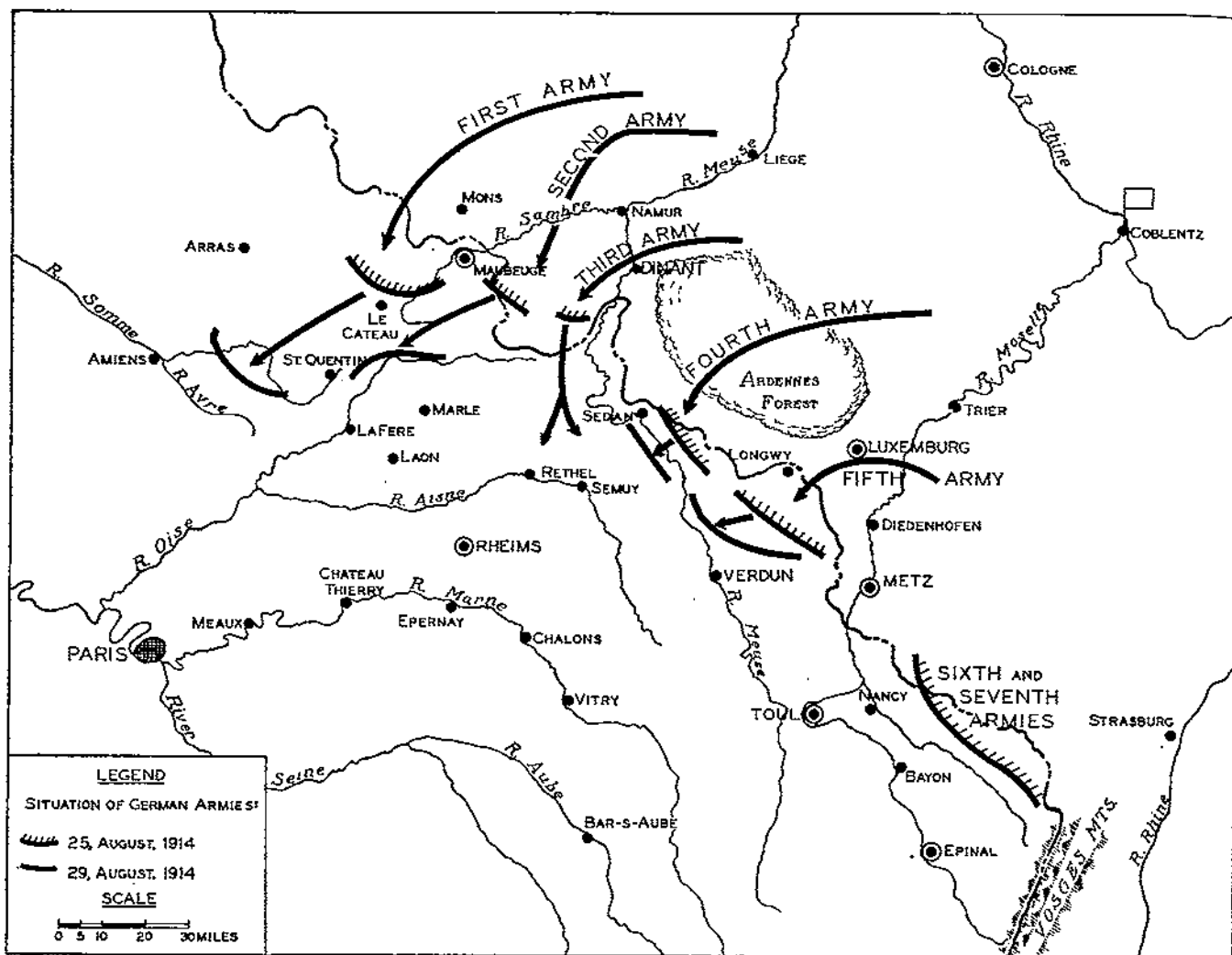
<sup>2</sup>The Sixth Army was commanded by Crown Prince Rupprecht of Bavaria; Chief of Staff, General Krafft von Dellmensingen; composed of the I, II and III Bavarian Corps, XXI Corps and I Bavarian Reserve Corps.

<sup>3</sup>The Seventh Army was commanded by General von Heeringen; Chief of Staff, General von Hänisch; composed of XIV, XV and XIV Reserve Corps.

<sup>4</sup>The Fifth Army was commanded by the Imperial Crown Prince; Chief of Staff, General Schmitt von Knobelsdorf; composed of the V, XIII, XVI, V Reserve and VI Reserve Corps.

<sup>5</sup>The Fourth Army was commanded by Duke Albrecht of Württemberg; Chief of Staff, General von Luttwitz; composed of the VI, VIII, XVIII, VIII Reserve and XVIII Reserve Corps.

<sup>6</sup>The Third Army was commanded by General von Hausen; Chief of Staff, General von Höppner; composed of XI, XII, XIX and XII Reserve Corps.



MAP 1—Gott sei dank! A victory had been gained.

left of the Fifth Army and against the Sixth Army, but these affairs could achieve nothing decisive. The situation of the center and left was excellent—in fact, it could hardly be better.

But what of the right? For some time there had been a dearth of news from the enveloping right wing toward which all Schlieffen-trained staff officers looked for victory. OHL—Kaiser, staff officers, civil and military entourage of the War Lord—awaited with the greatest anxiety for word from General von Bülow, who commanded the Second Army<sup>7</sup> and to whom the First Army<sup>8</sup> was subordinated. The first message from Bülow had merely mentioned "victorious combats." Later reports stated that the Second Army had beaten the right wing of the French army opposed to it at Namur and on the Sambre.

But early on the 25th, Colonel von Tappen, the trusted Chief of the Operations Department (G-3), had exultantly handed von Moltke a report which clinched things:

Second Army has decisively defeated enemy. Numerous

guns captured. First Army west of Maubeuge fighting English Army. Envelopment started. Cavalry corps commander reports flight-like retreat of English. Attack of Namur victoriously finished. Troops attacking Namur now available for other employment.

Later reports stated that the Second Army's victory had been decisive and that the Third Army was pushing through a gap in the French lines to strike the right flank of the French retreating before the Second Army. From Kluck's First Army came a delayed message indicating his intention of enveloping the English left wing.

*Gott sei dank!* A victory had been gained and from its effects it was obvious that the enemy could no longer escape. The big decision in the west favored German arms.

It was just as well; in fact, it was high time. East Prussia had been invaded by hordes of Russians, and the situation there was serious. The moment for regrouping forces—for a transfer from western front to eastern front as provided for by The Plan—seemed to have come. About six corps could go; two from each wing and two from

<sup>7</sup>The Second Army was commanded by General von Bülow; Chief of Staff, General von Lauenstein; composed of the VII, X, and Guard, VII Reserve, X Reserve and Guard Reserve Corps.

<sup>8</sup>The First Army was commanded by General von Kluck; Chief of Staff, General von Kuhl; composed of II, III, IV, IX, III Reserve and IV Reserve Corps.

the center. Bülow had reported that the XI Corps and the Guard Reserve Corps which had been attacking Namur were now available for other employment. They could go from the right wing. Let Colonel Tappen issue orders for their immediate departure for the eastern front.

The four other corps would have to be pulled out of the fighting front. That was inconvenient, especially since the right wing of the Sixth Army and the left wing of the Fifth Army had been counter-attacked. Perhaps it would be better not to try to pull corps out of the line just now. Yes, let that question go for the present, but start the two available corps back at once to entraining stations.

So everything was turning out for the best after all. His uncle's system of refraining from trying to direct a battle of several armies *was* correct. OHL had to be far back, and being far back it was unable to form independent judgment about the situation at the front; it was dependent upon reports from army commanders and these were slow and often overtaken by events. Such intervention as OHL had attempted had not been advantageous. No, in the future it would be far better to leave the handling of masses to the army commanders, who had been trained to do just that in the Kaiser maneuvers. Moreover, intervention might curb the initiative of subordinates.

Moltke had not found things easy. At times he felt that the weight of responsibility would crush him—war was so different from a *kriegspiel*. At the very start, the Kaiser had wanted to upset the whole concentration and make a complete new war plan. Then there was the time—some ten days ago—when Lieutenant Colonel Hentsch, Chief of the Intelligence Section (G-2), had gone astray, far astray. He had announced that more than three-fifths of the French forces were concentrated in Lorraine. Moltke had had to recast the whole plan of campaign overnight—only to find that Hentsch had greatly exaggerated. That was annoying. True, he had been able to go back to the original plan, but meanwhile six *ersatz* (replacement) divisions had already been committed to Lorraine. These had been originally in OHL reserve but, of course, according to The Plan, they were expected to follow the right wing. Fate had decreed otherwise.

And then there had been the breakdown in East Prussia. Prittwitz had failed to stand the test and had had to be relieved as commander of the Eighth Army. Fortunately, Moltke had known what to do—where to turn for an army commander. Old Hindenburg would be steady as a rock and for his chief of staff, there was Ludendorff. What a ridiculous idea of having Ludendorff in a minor capacity, anyway. The man was a wonder—he had been Tappen's predecessor as Chief of the Operations Department at OHL. They had had to let him out when he pushed so hard for the creation of new corps just before the war. Ludendorff had antagonized the politicians. Well, the politicians—even Social Democrats—would be willing to admit now that those corps Ludendorff had fought for would come in handy at present. At any rate

the command situation in the east was now satisfactory. And that was a lot.

Yes, army commanders, particularly royal highnesses, were hard to deal with. Take the Sixth Army. The French in Lorraine had been doing just what OHL desired—going into a strategic trap. The Sixth Army couldn't wait. It had insisted on attacking prematurely. So the Seventh Army, which was subordinated to the Sixth, had had to attack across the difficult, wooded Vosges. For that matter the attack direction of the Sixth Army itself had not been the best. Moltke had done what he could.

He had sent Colonel von Dommes (who had been at OHL for years, and was well known) down to see Rupprecht and his Bavarian chief of staff and recommend the correct plan of action. But those gentlemen were not given to taking advice. "Either give us definite orders or allow us to make decisions for ourselves," said Rupprecht. Of course one couldn't be arbitrary with the heir to the Bavarian throne, so the Sixth Army had attacked.

Moltke had no better luck with the Imperial Crown Prince. Like the Sixth Army, the Fifth had stirred up battle before OHL wanted it. They insisted on rushing forward to meet the French who were plunging blindly into the Belgian Ardennes. It would have been much better if the Fifth Army had obeyed OHL and waited. Then the French would have gone farther into the trap and the envelopment would have been more effective. But the Fifth Army had deliberately disobeyed orders. Well, allowances had to be made, especially since it had been a great victory and the commander was the Crown Prince.

To add to OHL's troubles, Kluck and Bülow were not hitting it off well; and Bülow, Hausen and Duke Albrecht did not always seem to see eye to eye. That was natural; it was part of the inevitable friction of war.

Well, the worst was over now. All his collaborators said so. Had not Tappen summed up things? "Within six weeks the whole matter will be settled."

Helmuth, Graf von Moltke, went to bed, and doubtless dreamed of bigger and better Sedans.

#### AUGUST 26

Early next morning Moltke promptly enlarged his decision of the previous evening—the right corps of the Fifth Army, the V, also should go to Russia. It was to be withdrawn from the line and sent to Diedenhofen to entrain.

But shortly after he had made this decision disappointing news came in. The Third Army's pursuit had not produced decisive results. It had been unable to strike the flank and rear of the French Fifth Army which was retreating before the German Second Army. Worse still, the enemy seemed to have escaped envelopment on the extreme right wing. The center had run into obstinate resistance on the Meuse. The Sixth Army, in Lorraine, reported that it was defending itself with difficulty against constantly renewed attacks from Nancy.

As these reports filtered in, Moltke began to doubt the greatness of the victories and said as much at the staff



conference that noon. Thereupon Colonel von Dommes made a suggestion. "Excellenz, we are far from the front and the reports of the armies do not give us a clear-cut impression of the situation. Let us send liaison officers to the armies—senior officers who will report the situation as they see it, and give us the benefit of their impressions."

Moltke rejected the idea. "Neither the army commanders nor their chiefs of staff deserve such apparent distrust," he said. "Moreover, there are not many suitable officers available. We cannot send just anybody to such high authorities as army commanders. Furthermore, these officers would have to be known personally to us or else we could not set great store by their judgment. No; only in special cases can we send liaison officers to the armies."

After the staff conference small groups of officers gathered and discussed the situation. The younger members of the staff concluded that the decision to send troops to Russia had been premature.

"Tappen and Dommes were against it, you know," they told each other. "And then see what is happening—we send three corps from west to east while simultaneously the IX Reserve Corps is being brought from east to west. Ridiculous!"

Nearly everyone at OHL now admitted that the movement of the IX Reserve Corps to Belgium had been premature. It had originally been held back in OHL reserve to guard against landings. It could have been sent to the east if only it had not been in the midst of a move to Belgium. Even the usually pleasant Moltke blamed Tappen and pointed out the paradoxical nature of the troop movements in progress.

At OHL the First Army's situation was still unknown. Signal communication with the right wing was proving unexpectedly difficult—so difficult that it was impossible to keep even reasonably abreast of the rapidly changing pursuit situation. Well, the chief of the telegraph service would probably remedy this state of affairs before long. Meanwhile since OHL could not follow the situation, it would not attempt to intervene. Let the army commanders handle things. Perhaps things would look up tomorrow. Anyhow, the war was won.

Thus the difficulties of communication with the armies were forcefully brought home. The danger signals were burning!

#### AUGUST 27

At the noon conference Tappen was obliged to paint a still more sober picture. Resistance on the Meuse was strong. In Lorraine the pursuit by the Sixth and Seventh Armies was alarmingly barren. In short, although the enemy had been struck a terrible blow he had succeeded in shaking off his pursuers. *Moreover, he was still able to fight!*

As the day wore on, it became evident that OHL would have to issue basic instructions for the further conduct of operations on the western front. Furthermore, it was now

apparent that coördination was not to be effected by agreements between army commanders nor by the subordination of one army to another. Neither method survived that ultimate test—war. There had been serious differences of opinion between Kluck and Bülow as to the forces which should be left to invest the French fortress of Maubeuge. Kluck had appealed to OHL. It appeared that not even Bülow, master of maneuver and tactics though he was, could command his own army and another army at the same time. OHL probably would have to free Kluck.

But if that were done, should not OHL take a firm hold of affairs on the right wing? Perhaps OHL should be moved from Coblenz. Staff officers and chancellors and Kaiser's aides debated. No; OHL must not be moved at this time. Maybe later to Luxemburg or to Trier, but in any case, not yet.

The upshot was that Moltke cancelled Kluck's subordination to Bülow but, significantly enough, he took no steps to enable OHL to conduct the operations of the right wing. With wide-open throttle, OHL had raced past another danger signal.

Serious differences of opinion had also arisen between the Second and Third Armies. Should the Third Army wheel to the south and support the Fourth Army, as the latter requested, or should it pursue to the southwest in contact with the Second Army? The marching wing, the hammer-head, threatened to split up under the pressure of events. OHL decided that the Third Army should continue its pursuit to the southwest. This increasing friction clearly indicated that OHL must now issue new general instructions. These were drafted during the evening. True, information was sketchy and incomplete on a number of important points, but in these cases trained staff officers made the necessary assumptions. Certainly, the bad news was only temporary. The general situation was brilliant.

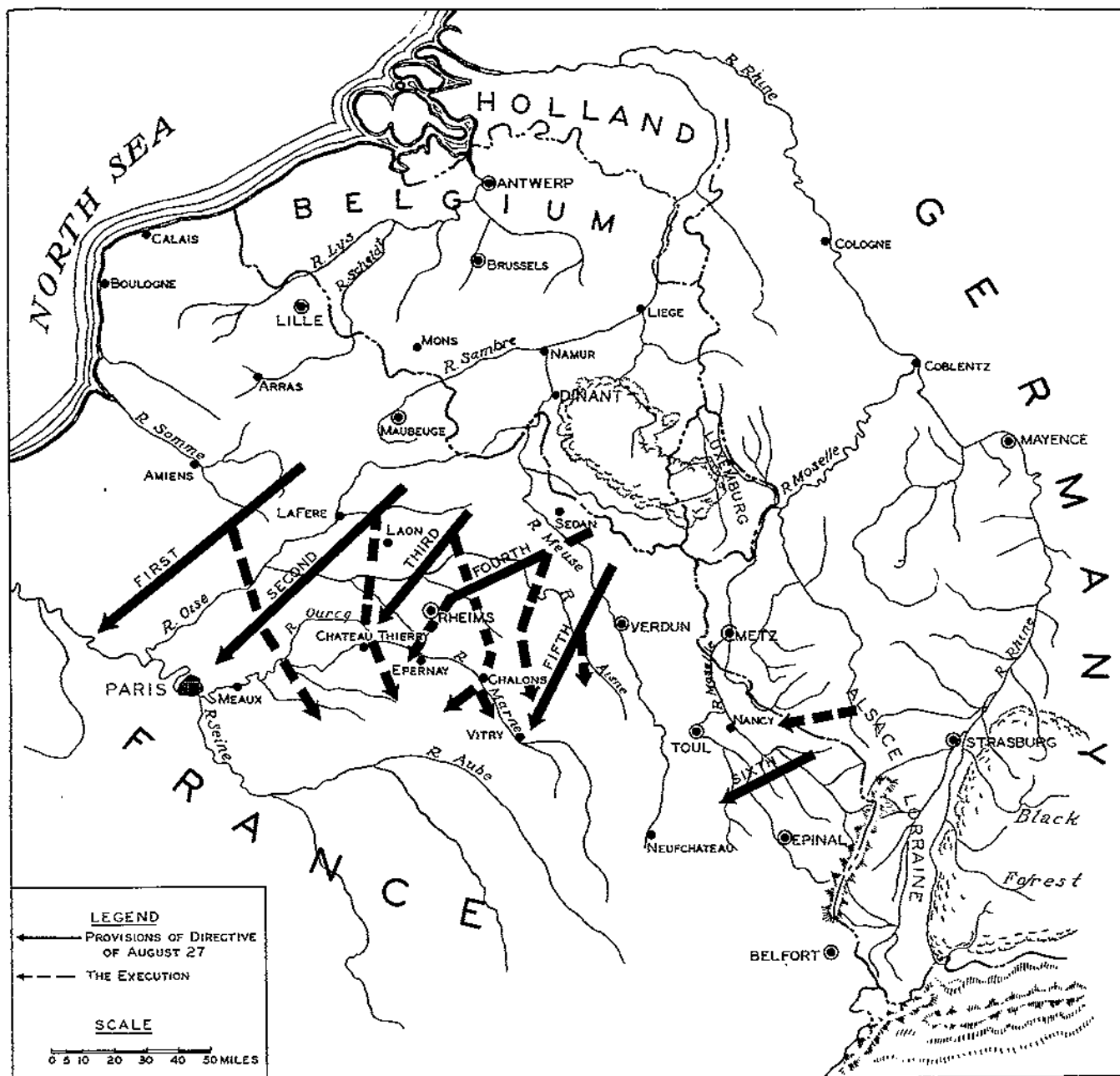
Consequently, "General Directions for the Further Conduct of Operations," issued by OHL on August 27, read like a trumpet call of victory. (Map 2). The enemy operations were reviewed, and then:

All regular French corps have already been engaged and suffered serious losses. The majority of the French reserve divisions have also been engaged and are badly shaken. The Franco-English armies' remaining capacity to resist cannot yet be definitely stated.

The Belgian Army is in a state of complete dissolution; it is incapable of an offensive in the open. . . .

The French, at least their north and center groupments, are in full retreat toward the west and southwest; that is, on Paris. They will probably offer new and serious resistance during this retreat. All intelligence from France confirms the fact that the French Army is fighting to gain time and to retain most of the German Army on the French front in order to facilitate the Russian Army's offensive. . . .

It is important for the German forces to march rapidly on Paris in order (1) to prevent the French Army from rallying; (2) to prevent the assembly of fresh bodies of troops; and (3) to deprive the country of as many of its means of defense as possible.



MAP 2—The directive read like a trumpet call of victory.

His Majesty orders the advance of the German forces in the direction of Paris.

The First Army, with the II Cavalry Corps attached, will march west of the Oise toward the lower Seine. It must be prepared to cooperate in the fighting of the Second Army. It will also be responsible for the protection of the right flank of the forces, and will take steps to prevent the enemy from assembling fresh bodies of troops in its zone of action. . . .

The Second Army, with the I Cavalry Corps attached, will advance via the line La Fere—Laon on Paris. . . .

The Third Army will continue its march . . . on Château-Thierry.

The Fourth Army will march via Rheims on Epernay. . . . The VI Corps is transferred to the Fifth Army.

The Fifth Army, to which the VI Corps is transferred, will advance against the line Chalons-sur-Marne—Vitry-le-François. It will be responsible for the (left) flank protection of the forces . . . until the Sixth Army can take over

this task west of the Meuse. . . . The 10th and 8th Ersatz Divisions are assigned to it, as soon as they can be spared by the Sixth Army.

The Sixth Army, with the Seventh and III Cavalry Corps, has first to prevent an advance of the enemy into Lorraine and Upper Alsace. The fortress of Metz is placed under the Sixth Army. If the enemy retires, the Sixth Army, with the III Cavalry Corps, will cross the Moselle between Toul and Epinal, and take the general direction of Neufchâteau. This army will be responsible for the protection of the left flank of the forces. . . .

All armies will mutually cooperate and support each other in fighting for the various lines which are to be gained. The strong resistance which may be expected on the Aisne and later on the Marne may necessitate a wheel of the armies from a southwesterly to a southerly direction.

While this instruction was being drafted, word from the Fifth and Sixth Armies indicated that the crisis was

over and that French counter-attacks had been repulsed. In the evening great news arrived from Russia—two to three Russian corps had been defeated, and Ludendorff hoped to bag an entire army. Moreover, Ludendorff didn't insist on having the reinforcements which he had been promised. If the three corps being sent to Russia were needed in the west, the east could get along without them. So Tappen and Dommes again tackled Moltke on this matter.

"Why not cancel the order? The Guard Reserve and XI Corps are still near Dinant. It will be three days before they entrain. They can easily turn around. The V Corps has not gotten farther back than Longwy." (Map 1.)

A long discussion followed. Dommes persisted but Moltke shook his head.

"The corps would be too late to take part in the pursuit. Besides, such changing of orders might weaken the confidence of the troops in the High Command."

"Excellency, these corps could act as a general reserve for the west front. They—"

"No," broke in Moltke, and he quoted: "'Order, counter-order, disorder.'"

Nevertheless, Tappen returned to the charge. Finally Moltke agreed to a compromise. The V Corps would be stopped; the others would go on to Russia.

#### AUGUST 28

Still another victory! This time over the English on the extreme right wing. The First Army reported that in a four-day battle from Mons to Le Cateau (Map 1), it had defeated the British, reinforced by three French territorial divisions. Several thousand prisoners had been captured. The retreat of the enemy to the west had been cut off and he was being forced southward. The First Army would pursue.

OHL breathed more freely. Things were going according to plan on the right wing. Of course, there was a considerable gap between the Second and Third Armies, but this would disappear during the pursuit to the southwest.

If only things were as favorable with the Fourth Army! Its situation on the Meuse was getting serious. The Meuse was a difficult obstacle and the wording of the Fourth Army's messages aroused apprehension.

Right flank south of Sedan in severe battle with two hostile corps—center still on near bank of Meuse—VI Corps on left crossed but with terrific losses for the 11th Division.

Later, things became worse. The 11th Division had been "thrown back." The attack "would be resumed when enemy artillery silenced."

In its difficulty the Fourth Army requested that the Third turn to the left and assist it and that the Fifth Army also be directed to help. The Fourth Army was extremely insistent. At 3:00 P.M. a telephone call demanded whether OHL had issued orders in accordance with Fourth Army desires.

OHL preferred the Third Army to continue its pursuit to the southwest, but at 6:40 P.M. an intercepted

radio indicated that direct appeals for help had induced von Hausen to send two divisions to assist the Fourth Army.

OHL considered that Hausen's action did not constitute an abandonment of the spirit of his pursuit mission if the bulk of his army continued to the southwest. On the other hand, it feared that his action would tear a gap in his own army.

Meanwhile the Sixth Army did not register enthusiasm over the idea of an attack across the Moselle. It did not feel strong enough to guarantee a rapid, far-reaching success. OHL urged it to attack. The Sixth Army's difficulties, thought OHL, were purely local and tactical.

#### AUGUST 29

The next morning when Moltke called for the reports of the night, Tappen said, "The news is good, Excellency."

Yes, the difficult situation of the Fourth Army on the Meuse had improved. By its own efforts the Fourth Army had surmounted the crisis and, after hard fighting on the 28th, had gained a foothold on the left bank of the Meuse, throwing back four enemy corps. On the 29th, Duke Albrecht intended to drive the enemy back still farther, and "expected great results from the march of the XII Corps of the Third Army in the flank and rear of the fleeing enemy."

"I didn't quite understand that, Tappen. Let me see Hausen's report. Hausen says that if the enemy in his front is weak, he intends to swing to the left to help the Fourth Army; otherwise he will attack the enemy in his own front. What did he actually do? I can't tell."

"There is no further news, Excellency. It would seem that no decisions can be made until the situation is clearer."

From the right wing, Bülow reported that he had reached the general line of the Oise and that only weak rear guards were in front of his right. On the 29th he would attack the fortress of La Fere. This report could mean only one thing—the enemy was continuing his rapid retreat before the Second Army.

The First Army had reached the Somme, throwing back French cavalry and weak infantry detachments. Two French reserve divisions coming from Arras had attacked von Kluck's right flank. They had been defeated, of course, and had retreated toward the north. OHL concluded that this hostile activity on the right entailed no more than weak enemy forces seeking to delay the First Army by piecemeal attacks against its flank. Well, Kluck had taken care of that.

But although OHL was satisfied that affairs were progressing famously on the right, its anxiety over the situation in the center lasted the entire day. Early in the afternoon the Fourth Army reported that the enemy in its front was in full retreat toward the Aisne. It now saw an opportunity for a great victory. Where was Hausen?

To that question OHL had no answer until late in the day. Then it learned that Hausen had responded to the

Fourth Army's appeals, left his assigned zone of action and marched to the *southeast* with the bulk of his army. Thus did a yawning gap open between the Third and Second Armies—a gap that spelt danger for the operations as a whole. Still, the Third Army might score a great success. OHL buzzed with opinions as to what ought to be done.

Moltke's decision was to do nothing. He would not interfere with Hausen's operation until he could determine its chance of success. And then, of course, there was tomorrow—tomorrow OHL would know more.

After all, the Fifth Army was faced with a difficult situation and Hausen's move might help. The Fifth Army was now reaching the Meuse and it could expect strong opposition there. It might easily be counter-attacked on its left flank while astride the river. That would be serious. Perhaps the best way to get it across would be for the Fourth Army, assisted by the Third, to push on to the Aisne. Yes, there was much to be said for Hausen's move. It had its advantages.

Such was the state of mind at OHL at the end of the day. On the whole there was reason to be satisfied with the situation. Furthermore, OHL was now to move. Days of debate, in which military reasons warred against political expediency, had finally resulted in something.

Tomorrow OHL would be in Luxembourg.

#### AUGUST 30

There were fine accommodations a-plenty in the picturesque capital of the Grand Duchy—but not for OHL. The word had gone out not to make things hard for the inhabitants of neutral Luxembourg.

So OHL, the brain and nerve center of the greatest army in the world, was lodged in a little red-brick school for girls. There, since early morning, were Moltke, Tappen, and the rest. Moltke had his office in a schoolroom on the second floor. Tappen was located in an adjacent cloakroom. In the center of this narrow room stood a table for the situation maps. Here the daily conferences were held, and at these times the room was so crowded that there was scarcely room to edge past the map table.

Tappen's assistants, Majors Bauer and Redern and the rest occupied an adjacent room. Dommes was also on this floor. Lieutenant Colonel Hentsch, chief of the intelligence service, with his alliterative comrades, Captains König, Köppen, and Cochenhausen, was on the ground floor. The Deputy Chief of Staff, General von Stein, and the chief of the railway service, Colonel Gröner, had offices in adjoining buildings. Perhaps this was just as well, for they did not altogether approve of the way things had been handled. Quite a few of the younger officers who were in the habit of criticizing Tappen seemed to form a clique around Stein.

Of comfort there was none. The tables in the little school were rough-hewn and full of splinters. For light there were candles and, for highly favored personalities, oil lamps—none too bright. Even the Chief of the Great General Staff worked under these conditions. This set-up

had been quite a jolt to OHL, so Moltke took pains to set an example of cheerfulness.

OHL could at least comfort itself with the thought that it was now free of the Kaiser's entourage, the civil officials, the minister of foreign affairs, the princes and the princelings.

Telephonic communication existed with the armies of the left, but radio had to be relied on almost exclusively to link OHL with the First and Second Armies, and probably with the Third. The posts of Metz and Cologne would help maintain communication and relay to Luxembourg.

At 8:00 o'clock on the morning of the 30th, Ludendorff telephoned in person from East Prussia that the German victory there was complete.

But on the western front something was happening that OHL did not quite understand. A radio from the Second Army, dated 2:45 A.M., reported:

The Second Army was engaged the 29th in a violent combat against enemy forces estimated at least five corps. It reached the line . . . and expects to attack the 30th, probably with support from the First Army.

Bülow engaged against five corps! He had thought there were only rear guards in his front. He must be right, however, for the line he "reached" was hardly farther advanced than the positions of the day before.

Kluck had also been attacked. An enemy coming from Amiens had struck his right wing. The French VII Corps from Alsace and some reserve battalions of chasseurs were now near Amiens. Kluck was going to attack this new enemy and at the same time support the Second Army with one division.

Were these mere counter-attacks to relieve pressure and facilitate a withdrawal? Perhaps, but Bülow's report sounded as if the enemy were seeking to pass to the offensive with his whole wing. Well, in any case the battle was already on—no use trying to intervene. The army commanders could handle things. Kluck and Bülow seemed to have arranged a little coöperation. After all, Bülow was the best general in the German Army and one could have confidence in him and his judgment.

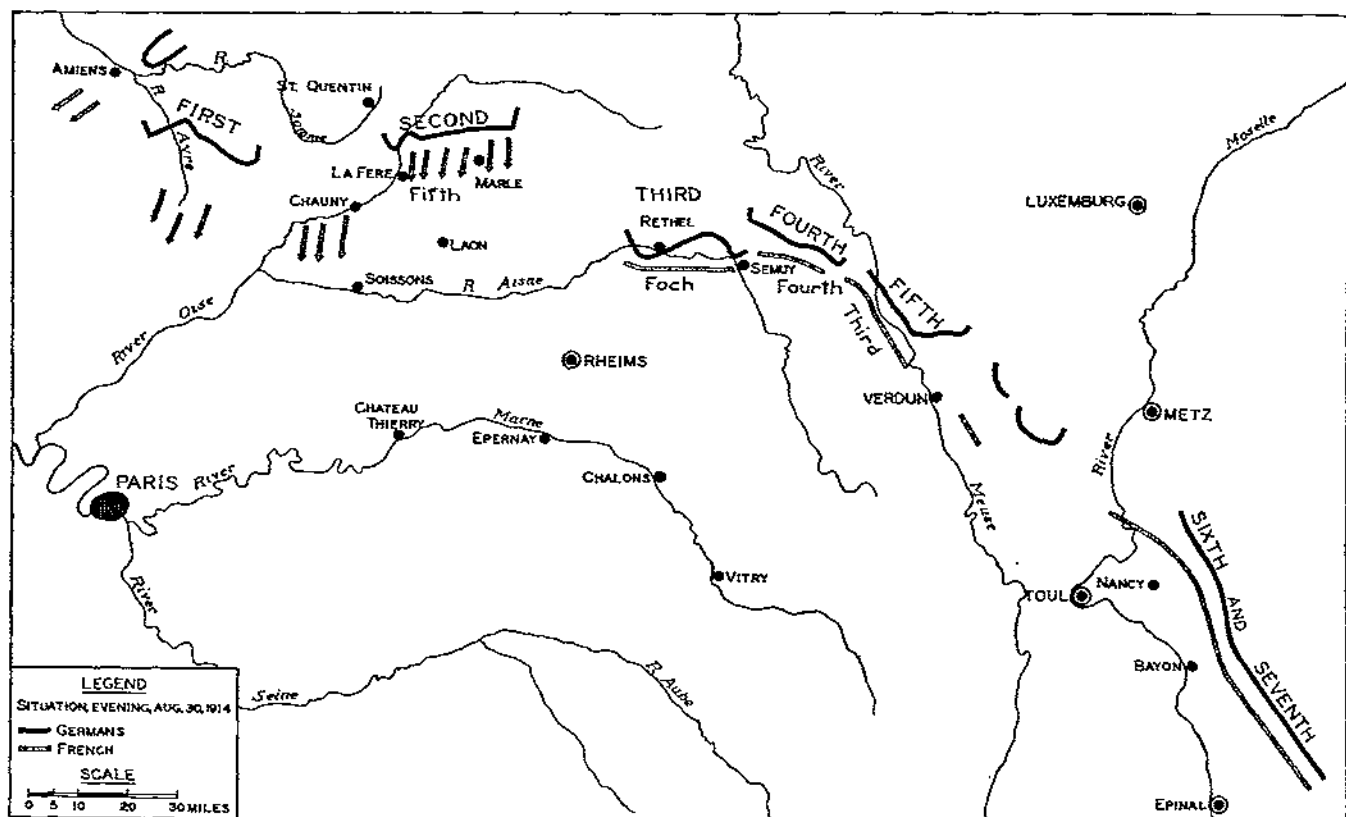
It was too bad that the Third Army, instead of advancing as ordered, had seen fit to wheel to the south to exploit the success of the Fourth Army. Now it could not intervene to help the Second Army.

Nothing new today from the Fourth Army or from Lorraine. Why were those Bavarians of the Sixth Army so slow? Moltke should have insisted on a Prussian chief of staff for Rupprecht. That had been arranged once, but Rupprecht had insisted on keeping Krafft.

General Ritter von Wenniger, delegate of the Bavarian Army, was announced and entered Moltke's office. The latter asked sharply: "Well, how about that Sixth Army? Is it finally going to attack?"

Wenniger began an explanation of why Rupprecht had not seen fit to resume the offensive yet. Moltke turned away and Wenniger retired.

At the staff conference at noon, Tappen reported that



MAP 3—As the day ended, the French were in full retreat.

he had sent Major Bauer, the heavy-artillery expert, down to the Sixth Army to look over the situation. Hentsch pointed out that there were four enemy reserve divisions near Verdun that might suddenly strike the left flank of the Fifth Army when it was astride the Meuse. Moreover, these divisions might easily be reinforced by French troops moved from Lorraine. In that case the situation of the Fifth Army would be serious indeed.

Moltke handled the matter promptly: the V Corps, now in OHL reserve, would be returned to the Crown Prince to cover his left flank.

Early in the afternoon the Third Army reported that it had run into strong forces north of the Aisne and requested instructions for the 31st, in case it should manage to drive the enemy beyond the river. Should it continue south or return to its zone of action, indicated in the August 27 directive?

In the middle of the afternoon, OHL intercepted a radio message from the First to the Second Army. The First Army had driven the enemy beyond the Avre (Map 3), and would move toward the Oise on the 31st. Thus Moltke learned that Kluck had defeated the new enemy and was now cutting in to the east to assist Bülow! At 5:40 P.M., a victorious report arrived from Bülow:

Today, second day of the battle of St. Quentin, the Second Army has won a complete victory. The French, four corps and three reserve divisions, are in full retreat. The Second Army has been assisted by the 17th Division (from Kluck's Army).

A few minutes later a message from Bülow to Kluck was intercepted:

The enemy has been beaten decisively. It is urgently desired, in order to exploit the success to the full, that the First Army pivot around Chauny in the direction of La Fere—Laon.

At 6:00 P.M. a message came in from Duke Albrecht. His Fourth Army had begun its march to the south about noon, on the heels of three retreating French corps.

The evening report from the Fifth Army insisted that the Fourth Army must move forward aggressively the next day to facilitate the Fifth Army's crossing of the Meuse.

It could be seen that OHL had important decisions to make. Just how did things stand? First, the right wing. Since the English had shown no sign of life during the two-day battle at St. Quentin, they must have continued their retreat. Probably all the fight had been taken out of them. Bülow had decisively defeated strong French forces, undoubtedly the French Fifth Army. The new forces met by Kluck had been thrown behind the Avre. All told, then, there need be no worry for the right wing. The enemy was not attempting a general offensive there. No, everywhere on the right he had been soundly beaten, and the German armies were in full pursuit. Indeed, Kluck and Bülow had just arranged a maneuver to reap the full fruits of victory. Bülow, of course, would also pursue. The generals of the First and Second Armies were on the ground; there was no reason why their measures should not be approved.

Now about the Third Army. Duke Albrecht wanted it to push south against the enemy withdrawing before him, and thought this move would be most fruitful.



Well, it might, at that. The central groupment of the French was not in touch with the French Fifth Army which was in full retreat. The enemy front was being broken up, dislocated. The enemy must never be permitted to reestablish himself.

On the other hand, steps had to be taken to see that the German front would not be dislocated itself by a huge gap between the Second and Third Armies. If the Third Army moved south, the Second must be brought closer to it. The First Army was already obliquing to the east. Yes, that was the thing to do. So, shortly after 8:00 P.M. out went the messages:

*To the Third and Fourth Armies:*

Intention of Third Army to pursue to the south approved. Fourth Army should coordinate movements with those of Third. Left wing Second Army moves approximately in direction of Rheims.

*To the First and Second Armies:*

Third Army has pivoted toward the south on the Aisne, attacks by Rethel—Semuy, and will pursue to the south. The movements initiated by the First and Second Armies are in accord with the will of the High Command. Cooperate with the Third Army. Left wing Second Army direction approximately Rheims.

Thus the signal "Shift Left" had been given with a vengeance. The axis of march of the Third Army (Map 2) had been changed from Château-Thierry to Chalons, 75 kilometers to the east. Now the Second Army would no longer march on Paris. It would reach the Marne between Epernay and Château-Thierry. The First Army must renounce all idea of the Lower Seine. Instead it would march in the direction of Meaux—east of Paris.

Thus, three days after the sonorous phrases of the August 27 directive had ordered the march on the capital of France, the German armies, with the approval of OHL, abandoned the direction of Paris.

It was no longer a case of the center armies regulating their movement on the right wing as The Plan had provided. Now the right wing was to guide center. But that made no difference—had not the decision been gained?

Late that evening a report arrived from the Sixth Army—still the same old story; it had done nothing. Intentions for the morrow: "to hold in place and make preparations for its new mission."

It certainly was time to begin to prepare! What a relief to turn to messages from East Prussia reporting more Russian prisoners.

Thus the day ended in an atmosphere of optimism and confidence: the Russians beaten, the French beaten again. The French, in full retreat from Sedan to Picardy, must be allowed no respite. In the pursuit there must be no night, no day, no fatigue.

"*Wegen und wegen*" had been old Schlieffen's motto—weigh the risks and then risk the chances. At present the risks seemed trifling.

AUGUST 31

A radio from Kluck confirmed his victory near Amiens. The French VII Corps and some Moroccan troops had

fled toward the southwest. The First Army had turned toward the Oise to exploit the success of the Second Army. It would protect the right flank with one corps.

Moltke felt positive there was nothing to worry about on the right wing. It was the center and left that kept OHL in a turmoil on the 31st.

At 6:30 A.M. a telephone message arrived from the Fourth Army. An order of the French Fourth Army (opposed to the German Fourth Army) had been found on the battlefield on the 29th. According to this order, the French Third Army (opposed to the German Fifth) had stopped retreating and was to counter-attack with its left wing; the French Fourth Army had also stopped its retreat and was assembling under the protection of rear guards. A new army under the orders of General Foch was to cover its left.

The liaison officer from the Fifth Army reported that the Crown Prince had met unexpected resistance; the left wing had still been unable to cross the Meuse; the right was engaged in a violent fight on the left bank. The Fifth Army took a somewhat serious view of things.

It was in the midst of the brain throbs caused by these events that a Major Xylander from the staff of the Sixth Army arrived, and demanded to see Colonel Tappen. It seemed he wanted to clear up certain things about the Army's new mission, and to complain about the Fifth Army's lack of cooperation.

Yes, said Major Xylander, the Fifth Army objected to giving up the heavy artillery reserve of the fortress of Metz.

"What are you talking about?" interrupted Tappen. "Why should it give up the Metz artillery?"

"But the new mission of the Sixth Army—the mission assigned by Major Bauer of OHL yesterday," answered Major Xylander.

"What new mission?"

"Why, the decision of the whole war is to be brought about now by the Sixth Army. It is to take Nancy first and then—"

Tappen leaped to his feet. "What!" he exclaimed incredulously.

Major Xylander patiently explained. Major Bauer from the OHL operations department—the heavy-artillery expert, you know—had visited the Sixth Army yesterday. He had said that henceforth the rôles of the wings would be changed—that now the Sixth Army would play the principal part—and not the First and Second. The Sixth Army would be the one to bring about the decision of the war. It must take the enemy in flank when he tried to stand on the line Paris—Verdun. First, of course, it must take the fortified position of Nancy, but that would be easy because Major Bauer had promised the Sixth Army all the heavy artillery of the fortresses of Metz, Strassburg and Mayence—a huge number of guns. Unfortunately, transport for these guns was limited, but the Army staff was now arranging that.

Tappen's mouth opened in astonishment. "Go on," he said.

The plan of employment of the artillery against Nancy was now being drawn up. The whole staff of the Sixth Army had been working on this and the artillery movement since yesterday. Major Bauer had helped. Orders for the movement of the artillery had gone out. However, the Fifth Army blocked the movement of artillery from Metz.

At first Tappen could only shake his head. Then he sighed and started talking.

"No, no, no," he began. "There never has been any idea of attacking Nancy before crossing the Moselle and penetrating the line Toul—Epinal. That is your mission. Do you understand? Nancy is not important. Penetrate between Toul and Epinal—that is what we have been asking you to do for days."

"But Major Bauer—"

Major Bauer must have been misunderstood or perhaps he misunderstood. Here, now, Tappen would dictate an instruction and clear things up. Ready?

(1) The Sixth Army will not get the reserve division of Metz or the Metz heavy artillery.

(2) The Sixth Army can keep the ersatz divisions (the 8th and 10th which it had been ordered to turn over to the Fifth Army).

(3) From Mayence it will get a battalion of 10-centimeter guns and a half battalion of heavy field howitzers.

(4) The army must maintain contact with Metz.

(5) The enemy, who is at least equal in strength to the combined Sixth and Seventh Armies, must be held in position before the Sixth Army.

(6) A preliminary or simultaneous attack on Nancy is not necessary. The army has only to cover itself toward Nancy with a force sufficient to prevent the enemy from driving back the right wing, and make certain that contact is not lost with Metz.

(7) If the Sixth Army continues to believe that the Moselle attack will not bring rapid and victorious results beyond the river, the question then arises whether the withdrawal of a part of the army from its present positions, with a view to its employment north of Metz in conjunction with the Fifth Army, is not indicated. Of course, in that case the rest of the Sixth and Seventh Armies would be drawn back later.

A postscript added that the Sixth Army must carefully consider whether the morale of the troops would not be affected too seriously by such a withdrawal.

Stein, the Quartermaster General, had interrupted the dictation with the statement that OHL expected that the attack across the Moselle, direction Bayon, would be launched on September 2.

Just as Major Xylander was leaving Luxemburg, he met Moltke himself, who had not been consulted on the matter by his subordinates. Moltke personally insisted on the importance of an early offensive by the Sixth and Seventh Armies, all the more so because he had just received information that the French were preparing an attack between Rheims and Verdun with ten corps.

So Major Xylander went back with a directive which was clear and decisive for six paragraphs, and then wobbled badly. Moreover, he had oral messages that did not agree at all with paragraph 7 of his directive. What kind

of a report should he make at Army headquarters. And what kind of a decision would the Army commander make?

Actually OHL had accomplished one of its very neatest jobs of buck-passing. In fact, it had passed two bucks at one time: one to Major Xylander, and one to Prince Rupprecht. Perhaps two were necessary. Rupprecht had been known, when handed a buck, to polish it on his sleeve and hand it right back.

So far as the Sixth and Seventh Armies were concerned, OHL's directive of August 27 had failed to cover the situation which actually developed. What should those armies do if the French neither attacked nor retired? What was their mission? What would be their attitude? It was lack of this precision that paved the way for one of the most fantastic episodes in modern military history—Major Bauer's mission to Prince Rupprecht's headquarters, and his amazing interpretation of OHL's intentions. The famous case of Lieutenant Colonel Hentsch is colorless beside the initiative of Major Bauer.

As a result of the good major's activity, the question of the use to be made of the powerful German forces in Lorraine (one of the big decisions of the campaign) had again been brought front and center. There was still time to reinforce the weakening right wing. Although the railway situation did not permit the Lorraine troops to be routed around to the right wing, the bulk of them could have been disengaged and moved via Metz to reinforce the Fifth Army. The German center, thus reinforced, could have assisted the right wing either by taking over more frontage or by turning over several of its westernmost corps to the enveloping forces.

The directive given Major Xylander shows that some such idea had been considered by OHL. But instead of giving a definite order for one thing or the other, Moltke and OHL only made recommendations and suggestions and then leaving the real problem to be dealt with by Prince Rupprecht, who naturally would approach it from the viewpoint of the Sixth and Seventh Armies. His solution could scarcely be expected to meet OHL's desires. Actually the Lorraine imbroglio was just beginning.

About noon Schmitt von Knobelsdorf, the Chief of Staff of the Fifth Army, called up OHL. He set forth the situation of the various corps and then added that the air force reported strong French forces moving *north and northeast*. Finally, he stated that the V Corps, which had been returned back to the Fifth Army, would be used to reinforce the right wing of the army.

Tappen reported the conversation to Moltke and recalled the earlier reports of the morning and the captured order. Almost in the twinkling of an eye, the situation in the center seemed to have changed. Moltke became convinced that the three French armies of the center were launching a general counter-offensive to crush the German forces that had crossed the Meuse. The Fifth Army, which was astride that river, seemed particularly threatened. Its right wing was reported as clinging with difficulty to the heights on the far bank and there was dan-

ger that it might be driven into the river. Moreover, Moltke felt that if the French, as on August 26, should suddenly rush out from their fortress line and attack the left wing of the Fifth Army, thus threatening communications with Metz, the check might turn into a disaster.

So the Fifth Army wanted to use the V Corps on its right. That was a local point of view. The real danger was on the left. But OHL did not feel that it could tell the Crown Prince how to use his corps.

Then someone had a clever idea. Out went an order to the Fifth Army at 5:30 P.M. The V Corps was again taken away from the army and placed in OHL reserve. Now OHL could give it direct orders. It would be prepared to act facing the south.

The Fifth Army protested. It insisted it was not worried about its left, but about its right and center, where things were serious. At 6:00 P.M. the Crown Prince himself got on the telephone in an effort to get OHL to cancel its order. Tappen merely explained Moltke's reasons. Thus, at 6:45, von Knobelsdorf called Tappen.

"The two right corps of the Fifth Army are stopped on the Meuse; the center has not yet managed to cross the river; the enemy artillery is powerful and effective, and we have not been able to silence it. Forcing a crossing would mean heavy losses. Since OHL has taken away the V Corps, only the Fourth Army can help us in this crisis. It is absolutely necessary that the Fourth Army be directed to act toward the south tomorrow; otherwise the Fifth Army will not be able to cross the Meuse for a long time."

Tappen reported this to Moltke, and at 7:00 P.M. the following radio went out to the Third and Fourth Armies:

Irresistible advance of the Third and Fourth Armies in co-operation with the Fifth Army is earnestly desired, since the Fifth Army is fighting hard for the Meuse crossing.

Much of the strain at OHL was relieved about 11:00 P.M. when the evening report of the Fourth Army arrived. The French had attacked the entire army and the left wing of the Third Army, but had been completely repulsed. The Fourth Army would continue its offensive to the south on September 1.

Thus the day ended in an atmosphere of complete confidence. OHL felt the French had sought a decision battle and had been beaten. Tomorrow the maneuver of

the Third Army would reap the fruits of victory by an envelopment.

Amid the turmoil created by the critical affairs of the Fifth Army, an intercepted radio from Bülow to Hausen, at 6:45 P.M., passed almost unnoticed.

On September 1 the Second Army will reach Marle with its left wing, capturing La Fere.

Marle, La Fere! That meant that the Second Army had not pursued on August 31. Why had Bülow delayed? Well, he knew what he was doing, and besides the final decision now lay in the center.

That night the Chief of Staff wrote to his wife:

The center armies fight today and tomorrow; it will be a battle of decision (*Entscheidungskampf*) on the outcome of which great things depend.

\* \* \* \* \*

Actually the French center was retiring according to plan. It halted now and then to strike a blow at its pursuers, but nothing even approaching a general action had been fought. The great decisive battle of his center armies existed only in the imagination of Moltke, who had been misled by the over-enthusiastic and inaccurate reports of his army commanders.

The main plan of enveloping the Allied left flank was being gradually submerged by the initiative of Moltke's subordinates—an initiative that sprang from Moltke's own failure to command. He had limited himself to approving whatever action his army commanders felt like taking. As time went on this formality seemed less and less important to his subordinates.

By the anniversary of Sedan, OHL had lost practically all control of the great flank maneuver. From its distant seat OHL was not only unable to influence the action of these armies, but appeared content to accept this state of affairs. The army commanders were now free to operate, each in accordance with his own conception and his own interests, and these were widely divergent. Intoxicated by repeated reports of victory and untouched by any sobering contacts with front-line fighters, Moltke and his assistants lived on in a blissful world of their own imagination. Meanwhile, somewhere to their front a quiet little river called the Marne flowed through a peaceful countryside.

In the preparation of these articles more than 100 sources were consulted, among them the French, German, British, and Bavarian official accounts; *Der Führerwille*, by von Mertz; *Le GQG Allemand et la Bataille de la Marne*, by Colonel Koeltz; Joffre's *Memoires*; *Joffre et la Marne*, by Major Muller; and *Liaison*, 1914, by General Spears.—AUTHOR.

# Forty Years With the Artillery

**Major General A. H. Sunderland, Chief of Coast Artillery, Inspects Past and Present, and Peers Into Tomorrow**

**I** FIRST met up with the artillery of this army in the later years of the last century." Thus did General Sunderland open his lecture last month before a class at the Army War College. He started with "to heave" in days before the War with Spain, and snapped to the hated command, "Commence grooming!" That was at a time when "the most emblematic piece of material connected with the artillery was the handspike."

The artillery has come a long way since those days. So has our Chief. From the fullness of his long experience, Gen. Sunderland salted his lecture with incident and spiced it with anecdote, to make it one of the most palatable and warmly received heard within the War College walls for many a day. The past he surveyed with light and pleasing touch; the present of the artillery arm he described in simple terms with the grasp of the expert he has become; and into the future he peered briefly to sketch with trained hand the possibilities ahead.

Space limitations permit only a portion of General Sunderland's lively and appreciated lecture to be outlined here—the high lights. Through compression, the lecture is robbed of some of its tang and flavor, but within space limitations an idea of his approach to the subject and its manner of treatment is presented in excerpts from his talk which follows.

The handspike was a 6-foot stick of oak, iron-tipped at each end, used to move and shift about heavy pieces of ordnance upon the command, "Heave". Gen. Sunderland related.

"A lank old cavalry officer was heard to say about that time," said Gen. Sunderland, "'Yes, you'll join the artillery, get on a parapet and heave and heave the rest of your natural life.' I was not greatly pleased with that prospect. Soon thereafter I encountered another command which was equally harsh—'Stand to heel,' and 'Commence grooming.' I did not like this any better."

"Time has junked the handspike for the worm gear; and the picket line and curry comb are fast yielding to the spark plug and the steering wheel."

Anyhow, he wound up in the artillery—in its entirety "7 regiments composed of 12 so-called heavy or coast batteries and 2 so-called light batteries," widely scattered. "The field batteries did little else than to gallop front into line on the parade ground," while "the heavy batteries did a great deal of Infantry duty." Lieutenant Sunderland's lot was cast with a mountain battery:

"A Captain, 125 men, 100 mules that had never seen a man, and three or four of us lieutenants who had never seen an enlisted man or mule," were thrown together with guns and miscellaneous equipment, dubbed the "25th Battery" and sent, with best wishes "into the wilds

of Mindanao in the spring of 1902." For 14 months they "floundered around in mountains and mud" just off the equator.

"People sometimes ask me," said Gen. Sunderland, "why I always look on the dark side of things."

Reorganization under the Act of 1901 and subsequent laws was sketched, with all its halting progress and mistakes, as well as its enthusiasm and privations.

"At the present time things are decidedly different. Formerly, the coast artillery did a great deal of infantry duty; now we do no more than is necessary to maintain discipline and to put up a fairly presentable appearance at parades and ceremonies. The reason is obvious: In the old days we did not have on hand the mass of railway, tractor drawn and antiaircraft artillery that is now issued to the coast artillery personnel.

"Every battery in seacoast artillery today is assigned its so-called additional armament. This armament may be antiaircraft searchlights, antiaircraft guns, antiaircraft machine guns, 155 mm. guns or railway artillery. Target practices are conducted with this additional equipment. Batteries assigned to such armament as a primary assignment will have a secondary assignment of one or more fixed seacoast batteries. This load is so great that we have no time at all for more than the most elementary infantry training.

"In fact, the coast artillery soldier fires only one small-arms course during an enlistment and that a very simple one. I do not concur in this because I think that a man who carries a rifle around ought to be more or less expert in its use. I furthermore hold that if he can become expert and facile in its use he can, with comparatively little additional training defend himself against an airplane. . . .

"Our armament is, in general, well located tactically, and while ships move more rapidly than they used to, we can still hit them, and hit them hard at ranges sufficiently great to keep them from getting into our harbors. . . .

"Just a word about gunnery. The normal target of the Coast Artillery is a moving one. It is a fairly simple matter to determine where the target is now, but where it is going to be at the end of the time of flight of the projectile is another matter. The time of flight is the curse of the Coast Artillery, particularly in antiaircraft. The Chief of Ordnance in all probability could build a gun of any caliber we might select with a time of flight one-half or one-fourth of the time of flight of the standard gun of the same gauge, but it probably would be so heavy and would require such heavy ammunition that it could not be handled. . . .

"Fire control apparatus for a seacoast battery, while

simple as compared to that of an antiaircraft battery, comprises quite an array. . . . The modern method is to use every means for accurate spotting and every means for making use of that spotting. . . .

"In 1898 the Quartermaster General remarked that he had just got the corps into fine shape—and here came the Spanish-American War and upset all his plans for the summer.

"We of the Coast Artillery thought we were pretty good—and here came the World War and the airplane and upset it all. The first efforts of antiaircraft firing were pathetic, as naturally would be foreseen by anybody stopping to examine the problem. . . . No fire control apparatus designed for seacoast work is at all applicable to a target of great altitude. No guns for attacking ships had ever been designed to function at the high angles of departure required. How, during the World War, they ever attained the effectiveness they did is a wonder to me.

"I have a full realization of the difficulties of the problem and think that while there is still a long way to go that we are doing nicely. I no more expect that the antiaircraft artillery will be able to annihilate every airplane in sight, regardless of numbers, any more than you can expect a battalion of infantry to do the impossible. However, even today we are making a percentage of hits of which I am very proud and I feel that we have just scratched the surface of the possibilities that lie beyond when we take full advantage of up-to-date scientific methods. My job is to coordinate such research. . . .

"We have three standard antiaircraft weapons, namely, the 105 mm. guns, the 3-inch guns, and the machine guns. . . .

"When I say that the machine gun is less important than the 3-inch gun, I am speaking from the Coast Artillery viewpoint. . . . The machine gun is very limited in range and effectiveness. . . . The machine gun problem is a much more vexing one than the gun problem. Just now there is no such thing as any standard equipment for machine gun fire control excepting the tracer bullet. It looks like almost cruel inefficiency to turn a poor machine gunner out with a gun entirely bereft of sights or any other means of fire control. . . .

"However, after repeated experimentation we have found that in firing the individual gun, better results can be obtained by turning the gunner loose with a sightless gun with nothing more than instructions to hit the target. We have found that the man can be trained to estimate the amount of lead that is to be taken under the various conditions of approach, speed and range so that he can do comparatively effective work within the range of the burn-out point of the tracer. . . .

"Antiaircraft machine gun fire can only be controlled through the agency of the tracer. Beyond the burn-out point of that, the gun is comparatively helpless. . . . The .50 caliber tracer will burn a little longer than the .30 caliber, but even at the distance of the burn-out point of the .30 caliber, about 800 yards, you can't tell where

they are going. God failed to provide man with eyes sufficient in stereoscopic power to tell where in the devil they are with respect to targets at the longer ranges. . . ."

As to the 105 mm. gun, Gen. Sunderland said that the necessary automatic loading device—the projectile alone weighs about 33 pounds—"is giving more trouble just now than any other feature of the gun. Its range is longer than that of the 3-inch gun, time of flight less, and the danger zone around the explosion of the shell is greater. The gun is well suited for fixed positions where the ammunition supply is easy. It is a good gun, but until we are well and sufficiently supplied with a good 3-inch gun, I am not very favorable to buying many of them.

"The 3-inch gun is the symbolic weapon of the antiaircraft. It is used on both fixed and mobile mounts. In the ordinary case it will fire up to the limits within which the observation of fire is effective. The 3-inch gun uses ammunition which can be loaded easily. The weight limits are such that the gun can be fired very rapidly. The danger space surrounding the bursting projectile is not as great in the case of the 3-inch as the 105 mm., but you can put up three or four 3-inch projectiles while you are putting up one of the heavier ones, and in a given amount of time probably will deliver three times as many 3-inch rounds of ammunition as rounds of the heavier.

"The 3-inch gun is very mobile and can be emplaced fairly quickly. It also will shoot well beyond the range limits of any of our searchlights, and, as the President said the other day when he saw one of our guns, 'I wish we had more of them.'

"The Chief of Ordnance has under development a new 3-inch gun that gives promise of being considerably superior to the present standard gun and I hope he gets it out pretty soon."

As to the future—

"I might say a word concerning the medium caliber weapon. I mean something between .50 caliber and 3-inch. I can conceive of a weapon that would be ideal, but ordnance experts say my conceptions are very wild. A .30 caliber or a .50 caliber projectile could slip through an airplane and the pilot would never know anything about it. A light projectile that could be made to explode upon contact with the plane would be ideal for destructive purposes. . . .

"Few of us have ever encountered a 150-mile wind; I firmly believe that if there could be opened in the wing surface of a plane or even in the fuselage a ragged hole a foot or so in diameter exposed to such a wind, the plane would either be destroyed or greatly handicapped, regardless of the fabric—metallic or textile.

"I feel confident that a 3-inch high explosive shell detonated by contact with the plane will destroy the plane in 95 per cent of the hits, but our probabilities of hitting are low, and I feel that a much smaller projectile would get fairly effective results and by their very number increase the probability of hitting."



# The Duke of Wellington

BY MAJOR GENERAL J. F. C. FULLER  
*British Army*

IN so brief a memoir as this, it is not easy to do justice to as great a man as Arthur Wellesley, Duke of Wellington, for his was a long life and a full one. Not only did it cover the whole of those tremendous years 1789-1848 (the greatest war in history until 1914 and the greatest revolution until the present age emerged) but for nearly fifty years the personality behind it was a dominant factor in Europe. This being so, I think it will be more just to him and more profitable to the reader if I eschew encyclopaedic methods, and, instead, examine him in such a way that we may discover what manner of man he was.

Fourth son of the First Earl of Mornington, he was born in 1769, the same year as Napoleon, probably on May 1, yet the date is uncertain, as it is in the case of his great opponent. Of his boyhood not much is known except that he had a liking for music and that his mother thought so little of him that to her he was "food for powder and nothing more." Partly educated in France, he was gazetted to the 73d Foot in 1787, became Lieutenant Colonel in 1793, Major General in 1802, Lieutenant General in 1808, General in 1811 and Field Marshal in 1813. This rapid rise was due as much to his parentage as to his abilities; for, without the first, the second would have been of little avail to a man of humbler birth.

In stature he was of middle height, slight and wiry. His face was rather long. His eyes were a cold grey and his nose aquiline: "The sight of it among us," wrote Sir John Kincaid during the Peninsular War, "was worth ten thousand men any day of the week." His soldiers used to say, "Arty, that long-nosed — — — that licks the Parleyvoos!" Physically, his endurance was amazing, and this was no doubt in part due to his simple way of living. He ate and drank little. . . . "We dined on

rations; no wine and no money!" wrote one of his officers in 1812. He slept on a twenty-inch camp bed, and could sleep at any time and in any place. At the battle of Salamanca he said to his A.D.C.: "Watch the French, Fitzroy, I am going to take a rest; when they reach that gap in the hills wake me," and a minute later he was asleep.

He was practical in his dress and simple in his requirements. One of his officers says, "I suppose no army ever had less baggage." And another, "We had no un-

necessary drilling, nor were we tormented by that greatest of all bores . . . uniformity of dress." So little did he worry over it, that he saw nothing peculiar in General Picton riding at the head of his troops carrying "a huge white umbrella lined with green."

Inwardly he was even more remarkable. First and foremost, and this is the key to his character, to his successes and his failures, his virtues and his vices—he was a believer in the divine right of blue blood. Although, he was an aristocrat to his finger tips, he loathed ostentation and outward show. Possessed of a profound sense of duty, he was autocratic and dictatorial and was never able to suffer fools gladly. He was outspoken to a degree, and as a result made many enemies and few friends, except among women, and even then, should they show a lack of breeding, he could freeze them with such remarks as, "Publish, and be damned!" A voluminous

writer and a profound student of war, he cultivated an unshakable self-confidence and control. He was never elated by success or depressed by failure, yet I feel that his chief assets lay in his ability to bear responsibility, in his integrity, moral courage and profound common sense. Humbug and sycophancy he could not tolerate. Once,

**He was never able to suffer fools gladly.**



WELLINGTON

*Reproduced by special permission of His Grace The Duke of Wellington. From the painting by Sir Thomas Lawrence at Apsey House.*

when Wellington was an old man, a gentleman assisted him across Picadilly and then with hat in hand, expressed in fulsome words the honour done to him: all the thanks he received was—"Don't be a damned fool, Sir!"

This realism was reinforced by an acute sense of humor. Thus, when he fought his famous duel in Battersea Fields with Lord Winchelsea, directly that gentleman arrived Wellington turned to his second, Sir Henry Hardinge, and said: "Look sharp and step out the ground. I have no time to waste. Damn it!" he continued, "don't stick him up so near the ditch. If I hit him he will tumble in." Yet I like best his reply, when he was told that General Cambronne had exclaimed: "*La garde meurt, mais ne se rend pas!*" Looking at a group of elderly Brussels cocottes, known as "*la vieille garde*," he replied: "*Elles ne meurent pas et se rendent toujours!*" But sometimes he could be bitingly sarcastic. For instance, in 1815, at the Court of the Tuileries some of Napoleon's generals, who had become Royalists, turned their backs upon him. Louis XVIII, who attempted to excuse this rudeness, received the following reply: "*Sire, ils sont si accoutumés à me tourner le dos, qu'ils n'en ont pas encore perdu l'habitude!*" Such was Wellington.

His first active service came in Netherlands in 1794. It was a poor beginning, but, as he said some time afterwards, "I learnt what one ought *not* to do, and that is always something." Three years later he went to India, where his brother, the second Earl of Mornington was Governor-General. It was to him that Pitt once said concerning his brother Arthur: "I never met any military officer with whom it is so satisfactory to converse. He states every difficulty before he undertakes any service, but none after he has undertaken it." There he remained eight years and saw much active service. During the invasion of Mysore he was repulsed in a night attack, after which he resolved "never to attack by night a post which had not been reconnoitered by day." In 1803, he won the battles of Assaye and Argaum and, in 1805 returned to England, putting into St. Helena on the way. Of St. Helena he wrote: "The island is beautiful, and the climate apparently the most healthy I have ever lived in." Perhaps ten years later, when Napoleon was a prisoner, he remembered that visit.

In 1807, Wellington commanded a division in the Copenhagen campaign and the following year was placed in command of an expedition to Portugal. Landing at Mondego Bay in August, he at once assumed the offensive. He won the combat of Rólica on the 17th and the battle of Vimeiro on the 21st, during which he was superseded by two incompetent generals—Sir Harry Burrard and Sir Hew Dalrymple. This led to the Convention of Cintra and, on account of the storm it raised in England, Wellington's career as a soldier would probably have come to an abrupt end had it not been for the good services of Castlereagh.

He urged the Government to continue operations in Portugal and Spain and in 1809 was appointed to head a new expedition there. Before taking over his command

he placed before Castlereagh an appreciation entitled "Memorandum on the Defence of Portugal," which Sir Charles Oman, the historian of the Peninsular War, rightly acclaims to be "a marvel of prophetic genius," for in it he predicted the whole course of the six years' campaign. He stated that the war would be a long one, that his task was to keep it going as long as possible, and that ambitious schemes should be set aside. He claimed that with 30,000 men backed by Portuguese levies and by using Portugal as a fortress supplied by the sea, he would be able to operate against the flank of the French armies in Spain. These he would paralyze, thus giving time for the Spaniards to develop a formidable guerrilla war on the French communications.

This was his plan, yet what were the means at his disposal? When, on April 27 he took over command of the British military fragments in Portugal, in all some 22,000 strong, the situation that faced him was appalling. Of commissariat there was practically none. There was no siege train, no ammunition columns, no ambulances and no pontoons. The men were in bad state of discipline; many of his officers disloyal; the staff inexperienced; the cavalry very weak and the oxen-drawn artillery totally inadequate. What did he do? By sheer force of will he shook these fragments into an army which he concentrated at Coimbra. On May 12, he crossed the Douro and occupied Oporto. He then pushed deep into Spain and on July 27 and 28 won the battle of Talavera.

That he was able to carry out such a campaign (as brilliant as Napoleon's of 1796), as well as the many others that were to follow it, was due to his long-sighted calculations and his faculty for judging the characters of his opponents. He was always observing them, and at Talavera was nearly captured whilst doing so. On another occasion, when on a reconnaissance, he saw Soult in the distance. Of this he said, "I had an excellent glass: I saw him spying at us—then write and send off a letter: I knew what he would be writing, and gave my orders accordingly."

In the realm of strategy, few generals have possessed so clear and calculating a brain as Wellington. He could weigh time and space factors with extreme accuracy. But more important yet, he realized how Nelson's victory at Trafalgar could be exploited on land. Once he said: "All the business of war, and indeed all the business of life, is to endeavour to find out what you don't know by what you do!" Because he was such a careful student of men and of events, he saw that the main problem of this war was one of lines of communication and supplies, not of numbers of fighting men, and that here England held the trump card—command of the sea. Of his strategical undertakings, it has always seemed to me that his masterpiece was his planning of the Torres Vedras campaign. This he thought out a full year in advance, as he did his move on Badajoz, in 1812. Though Masséna did not appear before the famous lines which protected Lisbon until October 14, 1810, Wellington had ordered their construction on October 26, 1809. Foreseeing that Napoleon

would reinforce his armies in Spain, and realizing that this would compel the British army to retire, he built the lines of Torres Vedras, and ordered the neighbouring country devastated. Thus, while the fortifications protected the British, Masséna would be "attacked" by starvation. This is what actually happened: the French were starved out of Portugal and the road to Spain was opened. Then, in 1811, the battles of Fuentes de Onoro and Albuera were fought, in 1812 Ciudad Rodrigo and Badajoz stormed and the battle of Salamanca won. Lastly, during 1813 and 1814 the successful campaigns of Vitoria and the Pyrenees carried the war out of Spain into France.

Wellington's foresight never failed him, in this most difficult of wars. Therefore, it comes as a distinct surprise to find him taken off guard at Waterloo—his last and most decisive campaign. Undoubtedly he misjudged the Royalist strength in France, and was deceived as to the nature of Napoleon's movements. Yet, also, I think that there were too many attractive women in Brussels at the time. For instance, on June 13 when Napoleon was but thirty or forty miles away, Wellington "took Lady Jane Lennox to Enghien for the cricket match . . . apparently having gone for no other object but to amuse her." And it is somewhat instructive to find him at 3:00 A.M. of the morning following the battle, writing to Lady Frances Webster, "a very pretty woman," to tell her she might remain in Brussels "in perfect safety." Anyhow, the Duke of Richmond reports that during the famous ball given on the eve of the battle, Wellington said to him, "Napoleon has *humbugged* me, by G—! He has gained twenty-four hours' match on me." Napoleon had gained the twenty-four hours all right, but it was Wellington himself who was responsible for the humbugging.

As a strategist Wellington was a truly great artist, because he possessed the faculty of being able to combine foresight with common sense. Consequently he never allowed his imagination to run away with his reason. Upon this foundation he built his tactics, and here again the same mental process is to be seen at work. Unlike most generals, he did not merely accept his army as a fighting instrument; instead he gauged its powers and limitations and devised his tactics accordingly. As an aristocrat he stood apart from his men. He disdainfully looked upon them as potential rabble and called them "the scum of the earth." Nor was he altogether wrong. For instance, in the winter of 1813-1814, the French peasants refused to accept Spanish dollars and English guineas. Therefore Wellington decided to set up a mint and appealed to his colonels to find him professional coiners. Forty were produced! Often has he been condemned for his cynical outlook; yet, in my opinion, it was justified, because whenever his men got out of hand, as they did at Ciudad Rodrigo and Badajoz, they behaved like fiends.

Though he sometimes dealt leniently with desertion, he would never tolerate plundering. As an aristocrat, his nature revolted at the thought of inflicting such hardship upon the common people; but more important still, he realized that plunder led to a relaxation of discipline

and thereby impaired the fighting power of his army. It was for these reasons that his discipline was so severe and at times brutal. There are ten recorded cases of 1,200 lashes and fifty of 1,000 being given; up to 500 was a common punishment. Yet, whatever we may think of this today, we must not overlook the fact that the age was brutal and that, tactically speaking, brutality paid. It was not the kindly general, such as Sir John Moore, who succeeded, but men like Wellington and Craufurd. Once, when a commissary of the Light Division complained that Craufurd had threatened to hang him if supplies were not punctually delivered, Wellington replied: "Then I advise you to have them up in time. For Craufurd is just the man to keep his word." Further, it should be remembered that Wellington's system did succeed in fashioning an army which in 1813 "could go anywhere and do anything." Also he said: "There is but one way—to do as I did—to have a hand of iron."

With his officers his methods were the same, for he realised that most of them were grossly ignorant. He required implicit and blind obedience. When he dealt with men like Hill and Graham, he gave direct orders, but to intelligent and independent characters, like Craufurd and Picton, he generally explained why a certain course was to be adopted.

In spite of the fact that until near the close of the Peninsular War, his army was almost always outnumbered by the French, he was not one of those generals who saw strength numerically; he saw it in relation to bread and beef. He realised that a small army that could be adequately fed was tactically superior to a larger army that was reduced to foraging. As Sir Charles Oman says: "Wellington's salvation lay in the fact that he could hold his entire army together, while his adversaries could not." Even more clearly than Napoleon, did he realise that "an army marches upon its belly"; in other words, that there is a definite relationship between bread and bullets.

Since his army was small, he was compelled to be prudent; yet it is a great mistake to think, as many have done, that he was no more than a cautious general. Though a master in defensive war, he could, when conditions were favourable, be audacious in the extreme; witness Assaye and Argaum in 1803, the Vimiero and Talavera Campaigns, and the storming of Ciudad Rodrigo and Badajoz. His Fabian tactics were sheer common sense: when conditions demanded prudence, he was prudent, and when they did not he could strike like a thunderbolt.

Indeed, few generals have understood the ingredients of tactics as thoroughly as he. He grasped the limitations of the musket of his day—that it was a deadly weapon at pointblank range, but next to useless at a distance. He realised that the dominant characteristics of the English soldier were steadiness and stolidity, two things that the French soldier did not possess. Therefore he could risk opposing the column tactics of the French by a two-deep line, thus developing his full fire power. In order to pro-

rect his men and also to mystify his enemy, he made the fullest use of cover by ground. This skillful use of terrain completely deceived Junot at Vimiero, and at Bussaco, caused Masséna to mistake the British centre for its right. At Salamanca and at Waterloo it was the same. At Quatre Bras, General Reille, a veteran of the Spanish Wars, needlessly halted before a position held by a single Dutch-Belgian division, because he thought and said: "*Ce pourrait bien être une bataille d'Espagne—les troupes Anglaises se montreraient quand il en serait temps.*"

Though I should like to discuss his tactics more fully, it is not possible to do so here. In the main they were of a defensive-offensive order: Wellington encouraged the enemy to attack, then when the enemy attack wavered in confusion, Wellington under cover of the smoke cloud of muskets, lashed out with his attack. He seldom massed his guns, because he rarely had enough and because his line tactics demanded artillery dispersion and not concentration. He seldom pursued a defeated foe, because his cavalry was weak and indifferent. He said himself: "They could gallop, but could not preserve their order." One remaining fact must be mentioned, for, combined with his use of ground, it raised him to the position of a supreme tactical artist. It was this: He saw everything for himself; he relied upon second-hand information only when it was impossible for him to do otherwise. As he said: "The real reason why I succeeded . . . is because I was always on the spot—I saw everything, and did everything for myself." Probably the most noted instance of this was at Salamanca. He was "stumping about munching" his breakfast, when an A.D.C. came hurrying in and said: "The enemy are in motion, my lord."

"Very well. Observe what they are doing," he replied.

In came the A.D.C. again: "I think they are extending to the left!"

"The devil they are!" remarked Wellington. "Give me the glasses." Taking it he scanned the moving French columns for about a minute and then exclaimed, "Come! I think that'll do! Ride off and tell Clinton and Leith to return to their former ground."

He then closed his telescope with a snap, and turning to his Spanish A.D.C. said: "*Mon cher Alava, Marmont est perdu!*" . . . and he was.

After the war he remained the same man he had always been—an exalted individualist. Because his aristocratic outlook ran counter to the rising democratic spirit of the age, it has been customary to write him down as a failure in the rôle of statesman. Actually was it not his amazing foresight, his vision almost spiritual in its clearness, that showed him where his spirit would lead? Are not events justifying it today? A failure he may have been during his short premiership of 1827-1830; but a failure from which much wisdom can be learned.

As a statesman his limiting factor was his contempt for the common people. Once he said: "I always had a horror of revolutionising any country for a political object. I always said—if they rise of themselves, well and good, but do not stir them up; it is a fearful responsi-

bility." He was fervently anti-democratic. He did not believe in "the collective wisdom of individual ignorances," as Carlyle put it. He had no faith in the theory that Members of Parliament should be elected, as he said, "to obey the daily instructions of their constituents, and be cashiered if they should disobey them." He believed such a system of government would kill "the race of English gentlemen."

Long before this, when in India, he had urged his brother, the Governor-General, to reëstablish the native princes after they had been defeated. Why? Because he realised that in India bureaucracy or democracy meant ruin. In 1815, he prevented the dismemberment of France so that, "We do not leave the world in the same unfortunate situation respecting France that it would have been in if Buonaparte had continued in possession of his power." His object was "to put an end to the French Revolution" and not to humiliate a great nation.

It was he who put forward a memorandum in 1820 that led to the foundation of the London police, because he was insistent upon the maintenance of law and order. It was he, and almost he alone, who forced Catholic emancipation through the Commons and the Lords, in spite of the fact that he was a Tory of the Tories. He did it because he realized that, unless it were done, civil war would break out in Ireland. He opposed Parliamentary reform, because he thought it would lead to a slackening of authority and the strengthening of mob opinion. He believed that the best of all systems was what he called "*la Democratie Royale*"—as much autocracy and as little democracy as possible. When Lady Salisbury expressed her apprehension of a split in the party he exclaimed: "The party! What is the meaning of a party if they don't follow their leader? Damn 'em! let 'em go!" Lord Clarendon once said of him: "Oh, that will be simple enough. He'll say, 'My lords! Attention! Right about face! Quick march!' and the thing will be done."

It is true that he was an indifferent politician, because he was a leader of men, and not a follower of public opinion. He cared nothing for popularity. Again, he was never a Parliamentary man. As leader of the Lords, he wrote to Lord Londonderry: "I do not choose to be the Person to excite a quarrel between the two Houses of Parlt. This quarrel will occur in its time; and the House of Lords will probably be overwhelmed." He wrote thus, because he never held the opinion that the chief duty of the Opposition was to oppose. In 1838, to Lord Redesdale he wrote: "There is nobody who dislikes, so much as I do, and who knows so little of Party Management . . . if I am to act it will be according to my own opinions."

He lived long enough to witness the democratic revolution of 1848 and to discern therein a menace to honesty and efficiency in government. He died peacefully on September 14, 1852. Though Disraeli described him as "the sovereign master of duty," I would prefer to call him "the last of the great aristocrats"; a man who will be better understood and appreciated by his countrymen a generation hence, than he was in his day or is in ours.

# Has the Army Too Much Radio?

By MAJOR GENERAL J. B. ALLISON  
*Chief Signal Officer*

**I view with distrust the use of the radiotelephone.**

I AM frequently asked, "Has the Army too much radio?" This question comes up in one form or another almost every day: "should our laboratories undertake to develop a new radio set for a certain purpose?" "Should a proposed basis of issue of radio equipment be approved?" "Can personnel be spared to operate a certain station?" Sometimes the proper answer to such questions is "yes" and sometimes "no." Each case is a special one and must be decided on its own merits, usually only after very careful study of cost of equipment, frequencies required, demands for personnel and the actual need for the additional communications requested.

In some quarters the growth of our radio organization is viewed with apprehension. It is true that the number of different types of sets, the total number of sets and the number of men assigned to operate them have all continued to increase. Since 1903 when the first Army radio stations began handling regular business across Norton Sound, radio has sold itself as the answer to more and more Army needs. It is natural that this persistent augmentation of our radio set-up, with its consequent demands for more men and money, should occasion concern, especially so among those who have not been in close touch with radio development and among those who visualize the communication needs of the 1936 Army through the veil of their memories of operations in the A.E.F.

It is a truism to say that we are living in a marvelous age. It is trite to mention that radio has had an amazing evolution from the crude, heavy, power-consuming sets of a former period to the finished, light, efficient equipment which we have today. The Army has also greatly changed during this period. It has become more and more complex with each passing year and its means of transport has continued to speed up. At the cost of becoming tiresome, I must mention these things because they account for the constant expansion of our radio set-up.

Our changing army is constantly finding new needs for radio; and radio itself is ever improving its ability to serve these new needs while serving the old needs better than before. Because of these things, our radio organization which filled the bill in 1916 was ancient history in 1926, and in turn our 1926 set-up would look like the horse-and-buggy days now. We just cannot imagine the GHQ Air Force, the Mechanized Brigade or the 1st Cavalry Division without modern radio. Nor could the commanders of these organizations hope to coordinate the action of their commands without it. To the offhand peruser of the radio charts of these organizations, they may seem extravagant of personnel and equipment. But to the commander, faced with the actual problem of control, they represent the minimum essentials.

By virtue of Army Regulations I am the advisor of the War Department on radio matters. In that capacity I am frequently forced to apply the brakes when people ask for more radio. But I do so only after careful study and then I see that the matter is followed up to make sure the decision is the correct one. I have little fear that radio will be unduly expanded; there are too many hard-headed commanders, staff officers, inspectors and other higher-ups who look at radio with a cold and fishy eye. Whatever place radio has in the Army, it has earned, and whenever it lays down on the job, you may be sure it will be promptly kicked out.

When I am asked the question, "Has the Army too much radio?" I know the questioner believes the proper answer to be "yes" and I assume he has some definite phase of the problem in his mind. A simple "no" will not satisfy his doubt. It is necessary to learn just what is back of his question. Effort may then be concentrated upon answering along that line of thought. The questioner usually has in mind one or more of five different phases of the problem. I shall set them down in turn in the form of questions, each followed by my answer to that phase of the subject.

*Question 1:* Radio is slow, unreliable, subject to enemy jamming, interception and goniometric location. It does not compare in reliability or usefulness with the wire telephone or telegraph. Therefore why not soft-pedal the former and concentrate on the latter?

*Answer:* The premise is correct and well recognized. Units which can hope in active operations to keep up wire communications, plan to do so. With them, radio is merely a contingent or auxiliary means to be resorted to when their respective wire systems have failed or before they are put in. The main effort of the communication troops of such units is naturally toward the upkeep of their wire systems. On the other hand, air-air and air-ground communications and those within mechanized and horse cavalry must obviously depend upon radio for long distance and immediate action communications. With them, radio has priority. They recognize its disadvantages but they realize it is radio or nothing. I am happy to say that radio is giving them satisfactory service. That they will have much more serious difficulty with radio when in contact with the enemy than in peace-time maneuvers, no one doubts. The effectiveness of radio for the next war, like that of air operations, can obviously never be proven until the opposing forces are in contact. Meanwhile, against such a test, we are striving to put into the field the best equipment in the world and a radio organization capable of handling it effectively.

*Question 2:* The War Department Radio Net is han-



dling a large volume of traffic and is handling it well, but at a number of small posts there are radio stations which do only a handful of business. The pay of the operators sometimes exceeds the charges which would be billed against the Government were the entire traffic of the station turned over to commercial companies. Since such stations are not economically justified, why not close them and assign the operators to other duties?

*Answer:* It is a fact that the radio stations at two of the smaller posts are definitely not justified economically, and it is probable that several other stations would be similarly classified if all items of cost were charged against them, but this is a question which has been asked officially and has been answered with finality. In 1931 the Chief Signal Officer appointed a board of officers to study this matter and as a result of the board's report, recommended the closing of 30 of the smaller stations. There followed protests from corps area commanders, and only nine were actually closed. Then came urgent requests for reopening and seven of the nine were recommissioned. Thus, of the 30 stations recommended for closing only two have remained closed and of these, one was located at a post which has since been abandoned. The net result of all this bother is thus approximately zero. In many respects corps area commanders differ from one another, but they have this in common: each is quite insistent that communications with all the fighting troops of his area be safe from interruption in case of national emergency or domestic disturbances. Even though the commercial companies may have a number of alternate routings from corps area headquarters to a distant small post, the all-Army direct radio channel gets the call. The experience cited seems to have definitely settled the question. Forts Brady and Wayne have their stations and, economically justified or no, I believe they are going to keep them.

*Question 3:* Each radio set which is authorized requires at least two and usually three operators. We have difficulty in training our relatively small peace-strength personnel even though we have all year to do so. How can we hope to train the large numbers of operators required for the war-time Army when we shall have only a few weeks available for their instruction?

*Answer:* This is a serious problem and one that is receiving earnest attention in my office. We expect to select for training as radio operators only the most promising and mentally alert of our Signal Corps recruits or draftees. Assuming ideal conditions, we hope to be able to turn these men out effective field radio operators at the end of 16 weeks. The problem of the reserve divisions, therefore, seems capable of satisfactory solution. But for the inactive units scheduled to arrive in the theatre of operations as part of the covering force, the radio operator problem will be more difficult. However, there are something like 48,000 amateur radio operators in the United States varying in ability from almost complete ineffectiveness to a state of excellence approaching com-

mmercial or War Department net standards. These latter and the considerable field of commercial and ex-Army operators will be our main reliance for the early units. We have contact with about 1,200 excellent amateur operators in our Army Amateur Radio System. These men, working entirely on their own time, learn Army procedure and handle Red Cross and other emergency traffic in accordance with Army methods. As far as the Signal Corps is concerned we can and will find a solution. This problem is equally serious, perhaps even more so, for the Infantry, Cavalry, Field Artillery, Air Corps, Coast Artillery, and the several corps areas. It is presumed that each has worked out its plans.

*Question 4:* Because of its complexity of equipment, because of its lack of secrecy and because of its wide frequency channel, should not radiotelephony be curbed and should not Army field radio sets be built for radiotelegraph operation only?

*Discussion:* During the last five years the Army has exhibited a marked tendency to abandon the radio key in favor of the microphone. This tendency is viewed with alarm by many students of the subject, who point out that when a radiotelegraph set is replaced by one using voice modulation, three important disadvantages attend the change:

(1) The new set is more complicated, expensive and difficult to maintain; in addition it is heavier and requires more power for its operation.

(2) Speech is less secret than dot-dash signals and less adaptable to the use of code.

(3) A voice modulated signal cannot be tuned as sharply as can an unmodulated radiotelegraph transmission. In allotting circuits, therefore, telephone nets require about  $2\frac{1}{2}$  times the frequency separation as do nets which use unmodulated telegraph only. Owing to the inadequacy of the usable spectrum for Army requirements, this appears an extravagance difficult to justify.

In discussing these points in sequence, the situation may be analyzed thus:

(1) It is true that radiotelephone equipment is more intricate, requires more skill for its maintenance and costs more than corresponding radiotelegraph equipment. Voice sets are also slightly heavier. In addition they require a larger power input for the same distance range than do radiotelegraph sets. These increases in weight and power input might well be of decisive importance for some possible special use, but when the set is to be transported by a motor vehicle or airplane and operated from its source of power or from a separate gas engine these factors assume minor importance.

(2) An organized radio intelligence service will employ expert operators for its intercept activities. Such a service may be expected to have little difficulty in making reliable transcript of key traffic or of voice transmissions. In this respect, therefore, the telephone is not at a dis-

advantage. However, when radio traffic is by voice in the language of the enemy, we may be sure his front-line troops will also listen in and that such an expanded radio intelligence service would almost inevitably learn at least the general intentions of the voice-using unit. The adaptability of voice transmission to code has not been fully investigated by our Army nor are results available of any tests which may have been held elsewhere. Lacking such information, material has been prepared to test the use of code with voice transmission. Reports of recent maneuvers indicate that an enemy would be likely to gain much information from our radio transmissions because of carelessness or ignorance in cryptographing and unnecessary informal communications between operators whether by key or voice. By the use of radio monitoring stations at future maneuvers, it is hoped to correct our deficiencies, determine the weaknesses of our methods and learn the relative merits of radio telegraphy and telephony in respect to secrecy.

(3) The dispersion of small Army forces at widely separated posts generally permits each such unit to utilize for its training the entire frequency band of each of its types of sets. These units are thus able to be most liberal with themselves in the matter of frequency channel separation for the various local nets. Warning of scarcity in case of a large concentration disturbs them only slightly, as of some far remote possibility which may never occur. Such being the case, it is difficult to make them see the famine of frequency channels which will exist when a field army is concentrated in a theatre of operations. However, in spite of the nonconcurrence of the using arms, the extravagant demand of the telephone channel for width of frequency band is a vital concern to us all.

This analysis seriously indicts the radio telephone. The only friends it has are the people who use it; they swear by it. They point out that for rapid operations, coded telegraph messages are entirely too slow for the need, whereas a few words by voice are sufficient to coordinate instantly the movements of a large force. They mention the fact that three or four highly trained radio mechanics can keep many sets in operating condition whereas the numerous operators, since they need not be fast key-men, can give much of their training time to other specialties required by their units. Radiotelephone enthusiasts also attempt to show that, for the more frequently used messages, a simple prearranged code, supplemented by a specially prepared map, will secure the necessary secrecy. They contend that before an enemy could solve such messages and act on the information they contain, the situation would have so changed as to render the information of no value.

*Answer:* After considering all sides of the problem, I continue to view with distrust the use of the radiotelephone because of its lack of secrecy and its wide frequency channel. Pending results of tests of radio secrecy and collection of further information on use of frequency channels, I believe it wise for the using arms to fully in-

vestigate the tactical possibilities of voice transmission. But they must be prepared to use the telephone with the serious restrictions which will have to be imposed.

*Question 5:* A war-strength field army under present allowances will have about 2,000 radio sets in more than 327 separate nets. So many nets cannot operate on the available frequencies without mutual interference. This being so, why not take much of this equipment away from the troops now burdened with it and leave only those sets which can all operate at the same time? This would avoid some of the confusion we now experience in radio operation and would save men for the firing line. Moreover, the money which is now spent on this surplus radio equipment could be utilized for other things which we sorely need.

*Answer:* (1) Before answering this question we shall ask and answer a question of our own, "Who are the troops presumed to be burdened with radio equipment that they cannot use?" Obviously not the Air Corps, Cavalry or mechanized troops. There are left then, the Infantry, Field Artillery, Antiaircraft Artillery and Signal Corps. These troops are apparently assumed to be so burdened. But are they in fact? It is true that the former, more speedy group will require the lion's share of the limited frequencies and that there may be too few channels left over to permit all nets of the latter group to operate simultaneously. However, before we make this a positive statement and say there definitely will be too few channels, we must know the character of operations in which we shall be engaged. If these operations will be similar to those on the Western Front in 1918 then there is no question about it; there will be too few channels to go around and some modification will have to be made in the normal organization of our radio nets.

(2) In such a case, it will be the duty of the Army Signal Officer to find a solution and to devise a special radio organization to fit the situation from day to day. The indicated solution is liberality to units in the main effort and to those anticipating special need, but restraint to those in less vital operations. The Army Signal Officer will remember that radio is only an auxiliary or contingent means for these troops and he will know how to apportion the available frequencies so they will do the most good. For example: our charts usually show all 12 infantry battalions, 4 regiments and 2 brigades of a division on the front line, grouped into six tactical nets and thus requiring six different frequencies. This chart is purely schematic and we never expect to see such a formation in action. Three regiments with six or seven battalions on the line would be a more likely attack formation. Three frequencies, instead of six, would serve the infantry needs of such a formation. In emergencies, even a single frequency might save a situation otherwise lost. During the bombardment of the 3d Division by the Germans on July 14 and 15, 1918, at the Marne, every line of the 4th Infantry was severed. Eight pairs of linemen went out in an endeavor to repair the breaks

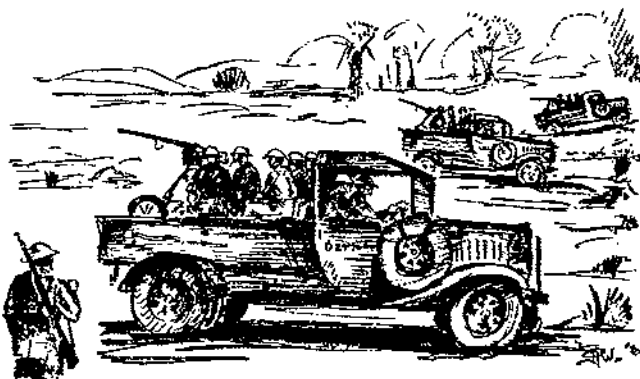
but every man was either killed or wounded. Radio was then resorted to and operated successfully.

(3) But many strategists find it difficult to visualize operations on the North American Continent similar to the trench-warfare stalemate of the Western Front. They picture swift-moving thrusts by forces operating with strategic coördination but with considerable tactical independence and wide intervals between adjacent forces. The main ideas are strategic speed, surprise and fast moving drives against vital points. If the operation of a force is blocked it will not necessarily dig in and organize for a head-on attack against a prepared position. Rather will it seek to withdraw and to move with speed to strike a telling blow elsewhere. It will abandon its strategic

mobility only as a last resort. If this be the likely character of our future operations, we shall need all our radio nets and shall be able to operate them simultaneously. Incidentally, it would be quite impracticable to maintain wire communications for operations of this character.

Such are the questions. It is well that they are asked. They indicate that thought and study are being given to our radio set-up and discussion of such matters is valuable. Although I live with this problem and have a certain familiarity with it, I almost never leave a new discussion of it without feeling that I have touched a new point of view and am therefore one step nearer the correct solution.

The opinions expressed and the conclusions drawn in this article are those of the author and not of the War Department. This is true of all articles published in *The Coast Artillery Journal*, but in view of General Allison's position as Chief Signal Officer, the fact is restated. — EDITOR.



*IT IS . . . the duty of the Army to teach the people so that they may have a proper realization of our true condition. It is for the Army to take to the people the military lesson that it has learned as their servant, to point out the fallacy of their blind faith in universal peace, to burst the bubble of our national conceit, and to bring the people to such an understanding of the facts that they will demand a military policy that will not fluctuate with the wind of politics, and in which the question of national defense will be paramount to local political selfishness. — CAPTAIN HUGH D. WISE.*

# Signitis

By RAPHAEL

*Then Simon . . . wondered, beholding the miracles and signs which were done. ACTS 8:13.*

**D**URING adolescence the desire to mark and placard billboards and sidewalks, and to inscribe maxims upon privy walls, is considered more or less normal. An offshoot of this tendency, the stealing and hoarding of signs by college youth, causes little comment, except perhaps by the victim of the larceny.

When the desire to place explanatory signs upon all manner of inconsequential and obvious objects extends into adult life, it may be considered an aberration, an extensive study of which properly falls in the field of abnormal psychology.

A less extensive study of this malady (which I have dubbed Signitis) has been made in this paper, and pertains exclusively to the military manifestations. I chose the military because I believe the symptoms to be a trifle more acute than in private activity. The liberal scientific spirit compels me to admit at the outset that I may be wrong, and that I can be convinced otherwise. However, let's examine the evidence gathered from one small garrison where the disease is endemic.

The regiment was camped ten miles from the reservation, on the first leg of a hundred-mile hike. At the head of K Company's street was the usual pyramidal tent, complete with bulletin board and guidon. A sign hanging from the canvas and another tacked to a stake announced that this was the orderly tent. Two signs announced respectively that First Sergeant Smith was the first sergeant, and that Private Jones the company clerk. The supply tent, next in line, was so designated by a sign. Sergeant White, it appeared, was the supply sergeant, assisted by a mechanic named Brown.

The shelter tents of the men were pitched in prolongation of the line of the first two tents. A small panel bearing the name of the occupant was set on a stake beside each shelter half. As an additional dignity, corporals and sergeants had a ground panel indicating their squads and sections.

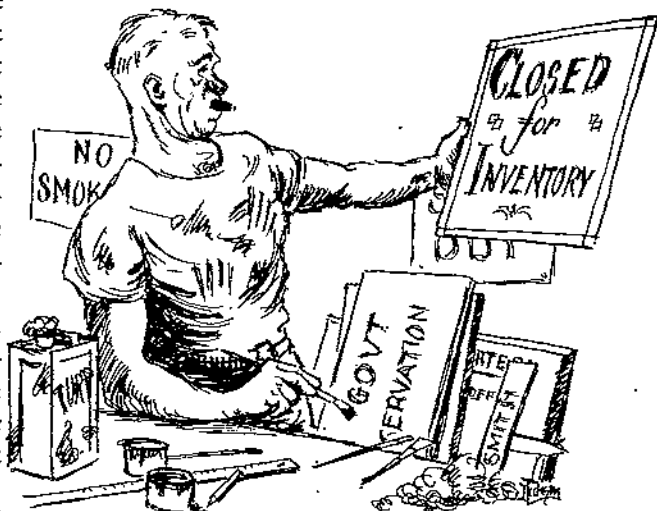
Across the street under a fly, white-clad figures labored in an aromatic haze of slum and coffee. Two sad-faced varlets dressed in sagging denims languidly sopped dirty water about in G-I cans. To the upright pole of the fly was nailed a four-foot panel: "Kitchen," it stated, so none

should doubt. Small, white panels with black letters, were attached to such objects as the icebox, field range, and serving tables.

At the end of a pathway beaten by the hurrying feet of purposeful men stood a khaki wall, from which after short stays emerged the same men, less hurried and less purposeful, departing with carefree whistling. "Latrine," said the sign, simply.

On this day there was an inspection, with the inspector and staff properly impressed by the copiousness of the signs. Owing to the limited space, the men, while displaying equipment, were forced to remove their nameplates in order to get in and out of their tents. In replacing the signs they failed to preserve the original alignment. In backtracking, a habit which inspectors acquire, this irregularity was commented upon with asperity, thus destroying the advantage obtained at first.

The next day the regiment moved out. Company K left 103 signs behind.



By retreat at the new camp, the company had its original gallery of signs on display. At the time, the S-4 was assuring the CO of A Company that upon his honor not a bit of transportation was available, Sergeant White was bowling down the road in a truck in quest of the lost signs, accompanied by the mechanic whose ears were still ringing with the threats of action that would accompany any further losing of valuable property.

So K Company wended its way across country, 103 signs secreted in the company baggage. The problem of transportation was solved eventually by a harrried cook, who used the signs for firewood during a rainstorm. Cooks are not busted on hikes—not even by the most austere company commander.

This was just a sample of what K Company could do when hampered by field conditions. At home in the post, where life was even and the arts could flourish, sign painting had a larger field.

In the blank space on the wall of the hallway, just abaft the orderly room door, once hung an elaborate board with removable panels, fashioned from thirty dollars worth of plywood, stain, clear varnish, and brass fittings.

At the top was the name of the corps area commander, followed by the names of lesser commanders, down to include the first sergeant. There was a space for every man in the company, arranged by platoons and squads, with an eye for symmetry. There was space for the

charge-of-quarters, the day-room orderly, and the cooks on duty. The theory was that at a glance one could tell just where everybody was at any time.

Its maintenance grew a trifle complicated. Post headquarters transferred lieutenants about with complete disregard of K Company's name board. The men changed their ratings, jobs, squads, and platoons with disheartening ease. Finally came a pay day party (and *what* a party—the regiment will talk of it for years) down at Mickey's Bon Ton Grill, which resulted in the busting and transfer of two corporals, the desertion of a cook, and the jailing of six privates. The name board collapsed under this assault, and now gathers dust behind the 1908 pool table in the cellar.

Nevertheless, K Company was still well provided with signs, inside of barracks and out. Garbage racks bore aloft tin placards stating "cans," in addition to the small tags beneath each can announcing that it was a repository for "ashes," "garbage," and "paper." All doors were labeled with the names of the activities or occupants, including two that were "empty."

These sign activities for Company K, and the rest of the post, rested mainly on the shoulders of the post painter. As in most posts where Signitis is prevalent, he devoted much of his time and that of his assistants to the manufacture of signs. The real painting was done by prisoners and details from the companies. He was a genial inebriate borne alternately on the roster of the Quartermaster Detachment and the Guard Report. His assistants mixed and dispensed paints, while he painted signs when not restrained by temperamental difficulties not unconnected with gin. At times he reached a state of alcoholic deterioration rather difficult to overlook for the Officer of the Day and other dignitaries charged with the preservation of peace. Manifestly, he could not paint signs with a fine artistic abandon while in the guardhouse, and almost invariably his sprees took place when an all-important sign project was about to burst into full glory.

Our post painter enjoyed peculiar privileges. There were always sign projects, official and semi-official, of which the Quartermaster was unable to determine the degree of priority with any equity. Hence, individuals and organi-

zations of the post found it advisable to ingratiate themselves with the post painter.

For instance, I Company was in dire need of a panel to identify the red fire axe hanging over the red bucket in the hall. The axe was labeled "fire" and so was the bucket, but it was felt that a tasteful arrangement of red, white, and black proclaiming "Fire Only" would insure the axe against being used for purposes of agriculture or mayhem. The painter arrived in the early forenoon smoking a dilapidated cigar, a pourboire from the post exchange representing a very nifty curlicued arrangement of "Stay Out—This Means You!" Having refreshed himself with a sandwich and a snort of lemon extract in the mess hall, he painted the sign in three hours while the troops sweated mightily in the sun on a variation of the platoon in attack.

By touching up "Today" and "Tomorrow" at the post theatre he saw the shows free; "Closed For Inventory" at the commissary won him the favor of the commissary sergeant and a free package of razor blades. So he lived a life of happy-go-lucky bohemianism while his less gifted comrades devoted themselves to the business of learning the art of war.

Our post also had a sign graveyard in a warehouse at the far end of the Quartermaster area. Here could be found defunct signs of all descriptions: C.M.T.C. signs; R.O.T.C. signs; O.R.C. signs; signs announcing the hours of Holy Church; swimming schedule signs; signs of individuals long departed and of activities and units long obsolete; and one sardonic masterpiece reading "Post No Bills." The era of the color-conscious KO with a yen for green and buff was well represented; Mrs. KO thought her potted geraniums went well with that combination. The natural-wood and black exhibit was large, beautiful and costly.

By and large, it's a harmless sort of diversion, but it does take an amount of time and effort that could well be devoted to useful projects. Perhaps, after the advent of M Day some large-souled individual will announce in a voice of brass: "No signs!" And will then qualify it by saying, "Except those absolutely necessary." A pessimist will tell you that nothing will come of this, but then, you never can tell.





# A Circular Slide Rule For Solving Triangles

BY CAPTAIN ROBERT W. CRICHLAW, C.A.C.

EVERY antiaircraft artilleryman is familiar with the fact that during training, firing, and the analysis of firing it is necessary to solve a large number of triangles. For example, during analysis of a target practice a determination of successive positions of the target every five seconds, on a course of one minute duration, will require the determination of 24 horizontal ranges, 24 altitudes, and 24 slant ranges, or a total of 72 values. The

large number of solutions to be made renders the use of trigonometric tables undesirable. To reduce the time and labor involved, Lewis charts and various forms of AA plotting boards have been employed.

This article describes a circular slide rule designed to accomplish the solution of all kinds of triangles. Also it provides a simple means for performing multiplication and division and for obtaining squares and square roots.

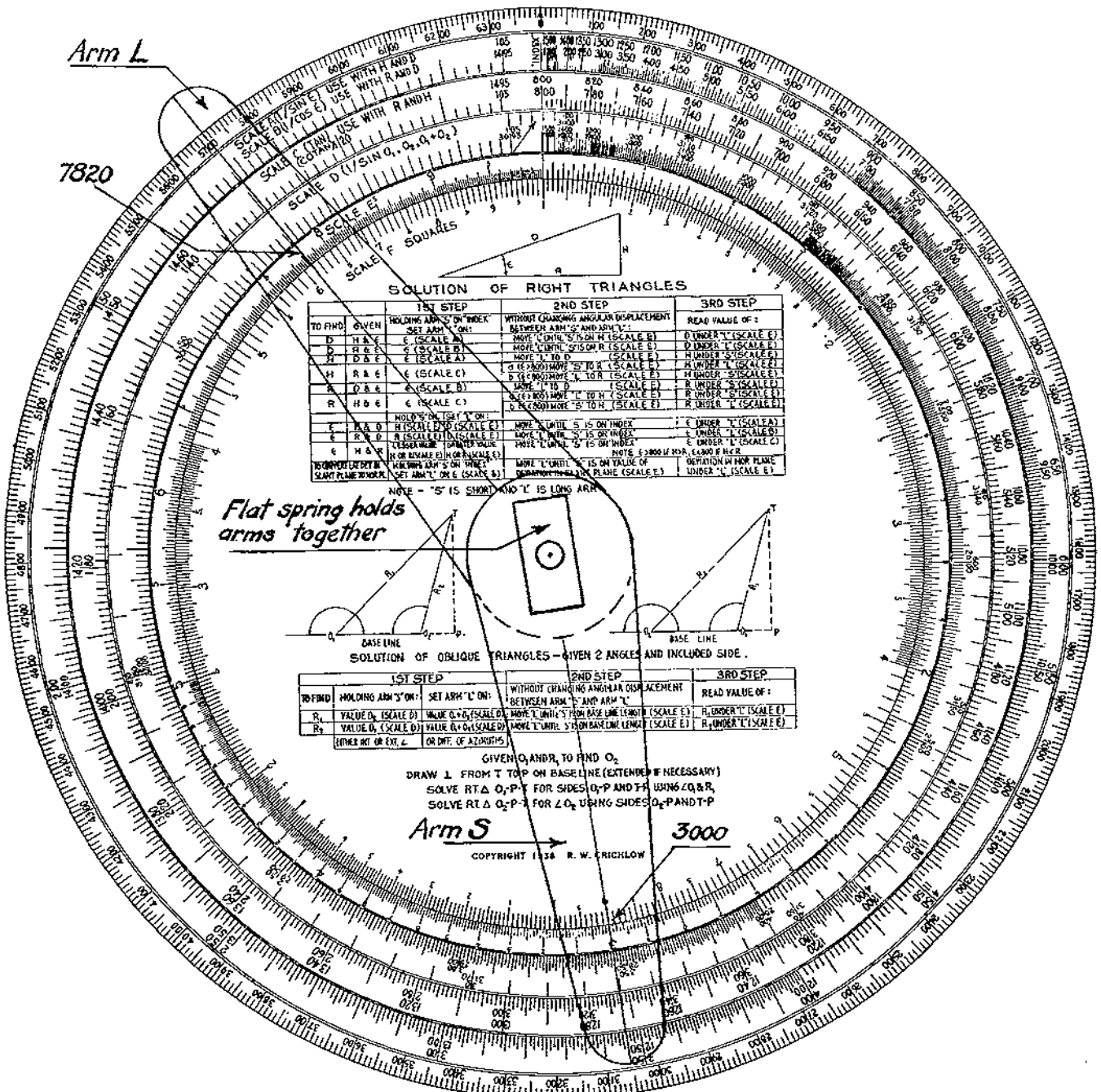


Fig. 1

All of these operations, except the last named, are necessary in target practice analysis. Because of its compactness and accuracy it seems to have some advantage over methods previously used.

The device shown in Figure 1 consists of a circular piece of cardboard, 10½ inches in diameter, on which is printed a number of concentric logarithmic scales; over the center of these there are mounted two transparent arms. These arms are held together by a flat spring so that they may be set, like a pair of dividers, at a given angle with one another; the arms may then be rotated about the center, to new positions on the circular disk, without changing the angular relation between them.

The outside scale is a 6,400 mil protractor. Inside of this the scales are lettered successively inward from A to F as follows:

Name of scale	Used when the following elements (known or unknown) are employed:
Scale A, $\frac{1}{\sin \epsilon}$	$\epsilon$ , H, & D. (Fig. 2)
Scale B, $\frac{1}{\cos \epsilon}$	$\epsilon$ , R, & D. (Fig. 2)
Scale C, $\frac{\tan \epsilon}{\cotan \epsilon}$	$\epsilon$ , R, & H. (Fig. 2)
Scale D, $\frac{1}{\sin O_1, O_2, \text{ or } O_1 + O_2}$	$O_1, O_2$ , & base line. (Fig. 3)

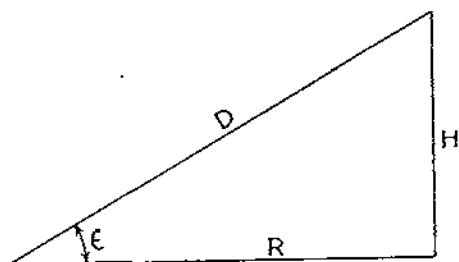


FIG. 2.

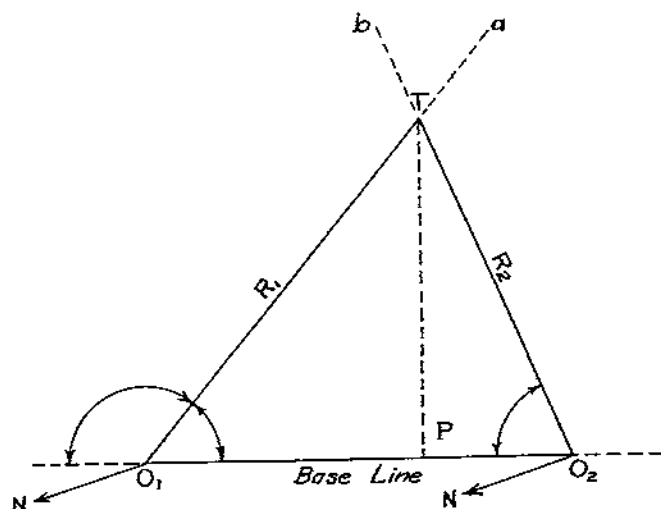


FIG. 3.

Scale E, a logarithmic scale of numbers used with Scales A, B, C, and D, or for the multiplication and division of numbers.

Scale F, a scale of squares of the numbers of Scale E.

Full directions for the use of the slide rule are printed thereon. The operations are not complicated and the average enlisted man can, in a short time, be taught to solve problems.

From Figure 2 it can be seen that the following relationship exists between the elements of a right triangle:

$$\sin \epsilon = \frac{H}{D}, H = D \sin \epsilon, D = \frac{H}{\sin \epsilon}$$

$$\cos \epsilon = \frac{R}{D}, R = D \cos \epsilon, D = \frac{R}{\cos \epsilon}$$

$$\tan \epsilon = \frac{H}{R}, H = R \tan \epsilon, R = \frac{H}{\tan \epsilon}$$

In each of the above equations three values are employed. When any two are known, the third can be found by obtaining the product or quotient of the other two. The slide rule supplies the necessary scales for performing the multiplication or division required.

The logarithm of a product is equal to the sum of the logarithms of its factors; hence, to multiply one number by another we add their logarithms; to divide, we subtract their logarithms. The scales of the slide rule are logarithmic; that is, the distance from the origin to any point "X" on the scale is proportional to the logarithm of "X." To multiply two numbers, say 2 by 3 proceed as follows: set arm "S" on the index (origin), set arm "L" on the graduation on scale E marked 2, the angle then formed by the arms is proportional to the logarithm of the number 2. If we apply this angular value to any other part of Scale "E," in a clockwise direction, we add a value, which is proportional to the logarithm of 2, to the logarithm of the number which appears under arm "S." Therefore, to multiply 3 by 2, we move arm "L" until arm "S" is on the graduation marked 3. Arm "L" will then be over the graduation whose logarithm is equal to the logarithm of 3 plus the logarithm of 2, or the logarithm of the number 6, and we find that the graduation is so marked. Had we desired to divide 6 by 2, the angular value corresponding to the logarithm of 2 would have been applied in a counterclockwise direction from the graduation marked 6; in other words, the logarithm of 2 would have been subtracted from the logarithm of 6 and the arm "S" would have indicated the number 3 as the answer.

In a like manner we may multiply the values of trigonometric functions represented on scales A, B, C, and D by any value on scale E. For example:

Given:  $R = 6,500$  yards,  $\epsilon = 750$  mils.

To find: D. (Fig. 2)

$$\text{To solve for D: } D = \frac{1}{\cos \epsilon} \times R$$

1st Step: Place arm "S" on the index, set arm "L" on 750 (scale B). The angle between the arms is then proportional to the logarithm of  $\frac{1}{\cos 750}$

2d Step: Without changing the angle between the arms, move arm "L" until arm "S" is over the 6,500 graduation on scale E. The logarithm of  $\frac{1}{\cos 750}$  has then been added to the logarithm of 6500 and the value of "D" appears under arm "L". (Scale E.)

$$D = 8,760 \text{ yards.}$$

Scales A and C are used in a similar manner with other elements of *right triangles*.

#### DETERMINATION OF HORIZONTAL RANGE

The determination of horizontal range, when the azimuths of the target from the ends of a horizontal base line are known, requires the solution of *oblique triangles*. Referring to Figure 3—in the triangle  $O_1TO_2$ ,

$$\frac{R_1}{\text{Base line}} = \frac{\sin \text{angle } O_2}{\sin \text{angle } O_1TO_2} \quad (\text{Law of sines})$$

$$R_1 = \frac{\sin \text{angle } O_2}{\sin \text{angle } O_1TO_2} \times \text{base line}$$

$\log R_1 = (\log \sin \text{angle } O_2 - \log \sin \text{angle } O_1TO_2) + (\log \text{base line})$ . The angle  $O_1TO_2$  is not measured directly. Referring to Figure 3 again—

Angle  $O_1TO_2 = \text{angle } aTb$ , which is equal to the difference in the azimuths of the lines  $O_1T$  and  $O_2T$ .

Also,

$$\text{Angle } O_1Tb = 180^\circ - aTb$$

$$\text{Angle } O_1TO_2 = \text{angle } aTb = 180^\circ - \text{angle } (O_1 + O_2) \quad (\text{interior angles})$$

The sine of an angle = the sine of  $(180^\circ - \text{the angle})$ .

$$\text{Hence, } \sin \text{angle } O_1TO_2 = \sin \text{angle } (O_1 + O_2)$$

Therefore, in the solution for  $R_1$ , we can substitute for the value of angle  $O_1TO_2$  either

- (1) the difference of the azimuths from  $O_1$  and  $O_2$ , or
- (2) the sum of the interior angles  $O_1$  and  $O_2$ .

The slide rule may be used to determine the slant range from either  $O_1$  or  $O_2$ . A detailed explanation as to how this is done need not be included in this article. Sufficient it is to say that the actual time required to determine these ranges is much less than the time it would take to explain the procedure. In a recent test of its use for range finding, it was found that ranges could be computed and announced by an enlisted man in five seconds after receipt of the readings from the base end stations.

When used for range determination, the slide rule eliminates the plotting board and reduces the personnel required. Its advantages over the plotting board in compactness and cost are apparent. It may be surprising to learn that its accuracy is a little better than that to be expected from a plotting board. Solutions covering all sections of the scale indicate that the errors in range seldom exceed one-tenth of one per cent, or 10 yards at a range of 10,000 yards. The greatest error to be expected is about one-quarter of one per cent, or 25 yards at 10,000 yards. Unlike the plotting board, the accuracy is not decreased by acute angles of intersection at the target. Of course, *errors of observation* at acute angles affect the accuracy of range determination, but these errors are not

chargeable to the computing device. Where very accurate observation is available, the slide rule permits the use of a much shorter base line than is practicable when using the plotting board. With a 100 yard base line, the slide rule will compute ranges up to 7,200 yards with a high degree of accuracy. Doubling the length of the base line will double the maximum range limit of the slide rule.

#### DETERMINATION OF $O_2$ DATA FOR OBSERVING TRIAL SHOTS

The slide rule may also be used for determining the data by which the  $O_2$  observing instrument is laid on the trial shot point in antiaircraft trial fire. In Figure 3, assume that "T" is the horizontal projection of the trial shot point. Drop a perpendicular from "T" to the base line at "P," thus dividing the oblique triangle  $O_1TO_2$  into two right triangles. With either the azimuth to the trial shot point or the exterior angle at  $O_1$  known, the interior angle at  $O_1$  can be found. The range  $R_1$  to the TSP is known. Using the value of the interior angle at  $O_1$  and Range  $R_1$ , solve for side TP (Scales A and E), and side  $O_1P$  (Scales B and E). In right triangle  $O_2PT$ , side  $PO_2$  equals  $O_1O_2 - O_1P$ . With  $PO_2$  and TP known, solve for angle  $O_2$  (Scales C and E). If the base end instruments have been oriented on the base line, the angle  $O_2$  thus determined will be the horizontal angle at which the  $O_2$  observing instrument is to be set; if oriented on North, the  $O_2$  angle must be corrected accordingly before being applied to the  $O_2$  instrument.

In order to determine  $\epsilon_2$ , the angular height of the TSP from the  $O_2$  station, the Range  $R_2$  should first be found. We may solve for  $R_2$  either by solving the oblique triangle  $O_1TO_2$  (Scales D and E); by solving the right triangle  $O_2PT$ , using the angle  $O_2$  and side PT (scales A and E); or by solving the same right triangle using angle  $O_2$  and side  $PO_2$  (scales B and E). With range  $R_2$  and the altitude "H" of the TSP known, solve the right triangle in space (Figure 2) for the value of  $\epsilon_2$  (scales C and E).

#### DETERMINATION OF TRIAL SHOT CORRECTIONS

When the trial shots have been fired and the lateral deviations of their bursts are known, the slide rule can be used for the determination of trial shot corrections. In the oblique triangle  $O_1CB-O_2$  the angles at  $O_1$  and  $O_2$  are equal to the corresponding angles in the oblique triangle  $O_1TO_2$  plus or minus the value of the lateral deviation in the horizontal plane. By solving the oblique triangle  $O_1CB-O_2$  for the side  $O_1CB$ , we can determine whether the center of burst CB occurred over or short of the trial shot point, and we may compute the amount of the horizontal range deviation. The horizontal range deviation can then be applied to the trial shot correction scales which accompany the Lewis charts. For convenience the correction scales and a short section of the range scale, including ranges over and short of the trial shot point, may be pasted on the back of the slide rule.

CONVERSION OF ANGLES MEASURED IN THE SLANT PLANE  
INTO CORRESPONDING ANGLES IN THE HORIZONTAL PLANE

If the lateral deviations of the trial shots are measured in the slant plane instead of in the horizontal plane, it is necessary to convert the deviations into corresponding values in the horizontal plane. Conversion charts, in one form or another, have been used for this purpose in the past. The value of the deviation in the horizontal plane is equal to the value of the deviation in the slant plane, divided by the cosine of the angular height. This is a very simple operation on the circular slide rule.

CONSTRUCTION OF THE SCALES

Up to this point, no mention has been made of how the circular logarithmic scales were constructed. There is nothing difficult or mysterious about this and they have been used for years, but it is probable that very few officers have had occasion actually to construct them, therefore a brief explanation may be of interest.

It is assumed that the reader is already familiar with logarithmic scales, such as are found on the straight slide rule. On such a scale the distance from the origin, which we will designate "x," is proportional to the logarithm of "x." Before constructing the scale it is necessary to decide upon its size (length). For example, suppose that the logarithmic scale is to include numbers from 1 to 10. The logarithm of 1 is zero; that is the origin of the scale. The logarithm of 10 is 1.0000. If we decide to have our logarithmic scale 10 inches long, our linear dimensional scale will be "one inch equals the logarithmic value 0.1000." The logarithm of 2 is 0.3010; 3 is 0.4771; 4 is 0.6021. On our logarithmic scale these values will appear at the following distances from the origin which is marked "1."

Number	Log/0.1	Distance from origin
1	$\frac{.0000}{0.1}$	= 0.000 inches
2	$\frac{.3010}{0.1}$	= 3.010 "
3	$\frac{.4771}{0.1}$	= 4.771 "
4	$\frac{.6021}{0.1}$	= 6.021 "

With the distances in the last column determined for

all numbers, the construction of the straight logarithmic scale is a simple matter.

If we had an accurate means of laying off distances along the circumference of a circle, we could apply distances determined in the above manner to a circle whose circumference is 10 inches, and the result would be a continuous circular logarithmic scale. If scales A, B, C, D, E, and F of the slide rule (Fig. 1), were all constructed to the same linear scale in the manner just described, the scales would have to be superimposed one upon the other on the same circle. Obviously, this would be very confusing. If the scales are separated and placed on concentric circles, the numbers and angular functions of equal logarithmic value should all be on a radial line drawn from the common center of the circles. In order to have the scales conform to this requirement, the logarithmic values should be converted into corresponding angular values instead of being handled as linear distances. In constructing the scales for the circular slide rule, described in this article, the following procedure was followed:

First, the logarithms of all values which were to appear on the scale were recorded. These values were then converted into linear distances, using a scale of one inch equals the logarithmic value 0.0100. This made the logarithmic scale of numbers (1 to 10) 100 inches long. If this distance were applied to a circle 100 inches in circumference, one inch along the circumference would subtend 64 mils at the center. In order to convert the linear distances in inches into angular values in mils, it was necessary only to multiply each linear value by 64.

The 6400 mil protractor shown on the rule was constructed, and was used in laying off the angular values on the different scales. With the scales constructed in this manner, all numbers or angular functions under an arm in any one position have the same logarithm. This amounts to the same thing as having all scales on the same circle. By making the original drawing to a large scale and then reducing it photographically, unavoidable small errors in laying out the logarithmic scales were reduced to a minimum. On the original drawing the mil protractor was 34 inches in diameter.

It may be of interest to note that scales of this nature cannot be reproduced accurately on photographic paper, due to uneven shrinkage of the paper. The copies of the slide rule in use at the present time have been reproduced by multilith or printed from a line cut.



# A Target for Axial Spotting

*"Range sensings from an axial station are accurate only when the splash is in line with some portion of the target."—CAFM, Vol. I, Part Two.*

THE foregoing quotation is familiar to battery commanders of rapid-fire batteries but, as each of them well knows, it is well-nigh impossible to keep the splashes of even the best calibrated guns in line with the small reference point offered by the pyramidal seacoast target. In consequence little dependence can be placed in target practice upon single-station spotting, the method which, because of its simplicity and certainty, is expected to be widely used in time of war. The battery commander who is fortunate enough to have a station at height of site of over one hundred feet can train his observers to judge overs and shorts from the relationship of the splashes to the waterline of the target, but there are many batteries for which nature has not provided such kindly eminences.

In an effort to devise some means of training observers in spotting splashes from low heights of site, Lieutenant Colonel H. H. Acheson, C.A.C., while director of the Departments of Engineering and Artillery at the Coast Artillery School, suggested a form of seacoast artillery target which would present to the spotter an area several times as great as the pyramidal target and yet would not offer serious difficulty in handling, either at sea or on the beach. With the assistance of the Coast Artillery Board and the Harbor Defense Ordnance Officer, such a target was constructed and it was used, with some success, in a number of target practices, both at Fort Monroe, in the quiet waters of Chesapeake Bay, and also at Fort Story, in the less sheltered area off Cape Henry. In Colonel Acheson's design for an axial spotting target, the desired length was secured without unduly sacrificing ease of handling by the device of articulating the target. The

axial spotting target was composed of three sections, each section being constructed as shown in the Figure 1 below, which shows one of the sections on the target beach.

The raft portion of each section consisted of the base and central mast of a model 1917 pyramidal seacoast target. At either end of the middle running timber a mast, ten feet in height, was erected. Each of these masts was formed of two 1" x 4" boards, nailed together in "T" form and set into a pillow block constructed as shown on plate I of Ordnance Pamphlet No. 1991. Each of the masts was guyed in three directions with wire rope. All three masts were braced together by horizontal 1" x 4" boards, nailed to both of the end masts and to the center mast; one brace at the tops of the end masts, the other five feet lower down. Over this frame, a strip of two-inch mesh chicken wire was nailed and strips of target cloth were woven into alternate rows of the mesh so that about one-half of the area was filled with visible material. The rectangle thus formed was thirteen and one-half by five feet in size and five feet above the water. A flag of the standard type, used with the pyramidal target, was fastened to the center mast to furnish an observing point. Three of these targets were towed in tandem, the standard bridles spacing them slightly over ten yards apart. The result was a target with an over-all length of approximately thirty-five yards. The alterations to the standard pyramidal targets were simple and easily made. Except for the chicken wire, standard target materials were used throughout. At first, various combinations of orange and black strips of bunting were tried in an effort to enhance the visibility but no combination was as good as the standard vermilion.

It was found by experience that the articulated target did not materially reduce the towing speed of an army mine planter; in fact, it was usual to tow a pyramidal target, as a spare, between the articulated target and the towing vessel. No unusual difficulties were encountered in handling the targets and the tow seemed entirely seaworthy. Experience showed, however, that the height of the strips of visible material above water (five feet) was too great and an additional strip of material was added to extend the visible portion of the targets down nearly to the waterline. It was also found that the use of the narrow strips of bunting tended to lower the visibility of the target at long ranges and that solid sheets of bunting were more visible. The use of narrow strips of bunting had been adopted originally to reduce the overturning effect of cross winds. The targets showed excellent stability, however, and were fully capable of carrying solid canvas in reasonable winds.

In the practices, in which the articulated target was used, the directional accuracy of the shooting was rather low and therefore the results, insofar as spotting was concerned, left much to be desired. Remembering the infrequency with which spotters have opportunities to ob-

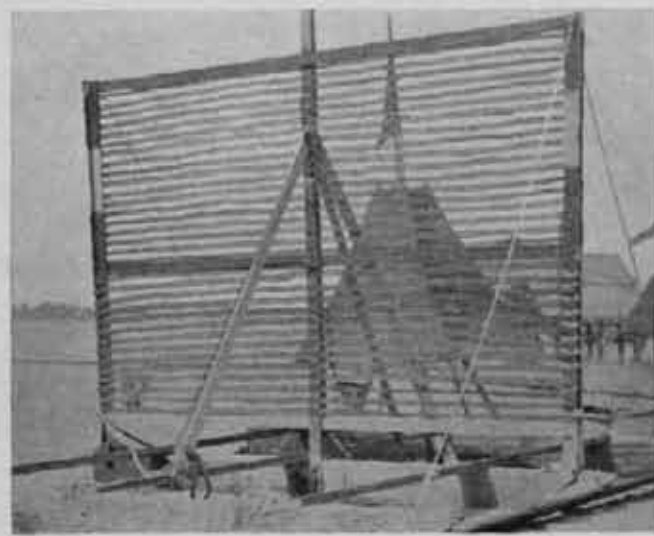


Figure 1



serve on targets of appreciable dimensions, the data tabulated below gives an idea what might be accomplished with axial spotting when firing at an actual war vessel.

	No. Splashes	No. Sensings Attempted	Sensings Correct	Sensings Incorrect	Not Sensed
Splashes outside the limits of the special target, 155 mm. and 8-inch firings.	42	222	7	11	204
Splashes in line with visible strips, 155 mm. and 8-inch firings	16	68	60	3	3
Splashes between visible strips 155 mm. and 8-inch firings	10	42	22	12	8

The proportion of correct sensings, of course, was too low to permit an early adjustment of fire with the small number of shots allowed in target practice, but valuable experience was given to the spotters.

The required height of the visible portion of the target above the water depends upon the range at which it is to be used, the height of the spotting station available, and the amount of refraction at the time of observation. It is

believed that a target with the top of the visible strip ten feet high could be used for spotting up to 14,000 yards range with a height of instrument of thirty feet; and that one with the top at fifteen feet could be used up to 15,000 yards with a thirty-foot height of instrument. A fifteen-foot target and a forty-foot height of instrument should be sufficient for spotting to about 16,500 yards range, provided visibility was good enough to permit satisfactory observation of any kind at that range.

It is believed that the training of axial spotters for rapid fire batteries is of an importance secondary only to the training of these batteries in delivering fire against high-speed targets. For this reason, it appears desirable to make special efforts to train spotters in axial observation, even though more reliable methods of spotting may be available when conditions are favorable. While the articulated target falls short of furnishing a material target of completely satisfactory dimensions, it does provide considerable assistance for spotters in judging overs and shorts from low heights of site and it can help to broaden the training afforded to the observers and spotters who are required by the latest instructions for Coast Artillery target practice to observe the firings of batteries other than their own.

## Loading Coils and Repeating Coils

*By Major Alva F. Englehart, C.A.C.*

THE Coast Artillery Board tested recently several loading coils and repeating coils. These coils have subsequently been standardized and authorized for issue to the Coast Artillery Corps.

### LOADING COILS

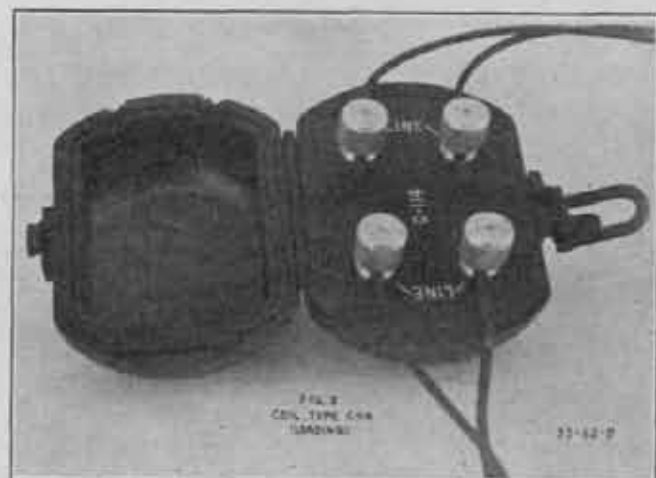
Loading coils are a means of increasing telephone transmission range over long field wire circuits of wire, type W-110. The improvement in transmission is about 30 per cent when the coils are inserted every mile as compared to the non-loaded circuit. The reason for the improvement in transmission is due to the fact that the inductance of the coil acts to neutralize the effect of the capacity of the field wire.

The loading coil comprises a toroidal shaped inductance coil with two balanced windings connected to four pin-type terminals which are mounted on a bakelite panel in a water-tight aluminum case. The complete unit weighs 2.5 pounds and the over-all dimensions of 5" x 3 3/8" x 2 3/4".

The toroidal shaped coil is an 88-millihenry coil of standard commercial production. The core consists of an iron-nickel alloy of about 21.5 per cent iron and 78.5 per cent nickel, known by the trade name of permalloy. The important properties of this alloy are high permeability and low core loss at relatively small magnetizing forces. The windings consist of two sections which are balanced

as to resistance and inductance. The balancing of the windings is necessary in order to avoid crosstalk between the side and phantom circuits or between the side and simplex circuits.

The cover of the case is hinged along one entire side and is held closed by means of a catch. The outside of the case and cover is given one coat of non-chipping abrasion-resisting black rubber enamel which is baked on for about three hours. The ends of both cover and case are curved so as to cause as little resistance to ob-



*Loading Coil, Type C-114.*



structions as possible upon drawing the unit through brush incidental to wire laying or recovery.

The coils are designed to be installed every mile of field wire, type W-110. It is not necessary to install loading coils unless the length of the line is at least four miles. The coil spacing should not deviate more than plus or minus five per cent from a nominal value of one mile and the end sections should not be less than 0.4 mile of field wire. Tests showed that with the coils installed as given above, the loudness and clarity of speech was appreciably increased over a non-loaded line, between a length of four to sixteen miles of field wire.

The ends of the field wire do not need to be stripped of insulation in order to connect the loading coils. In fact, if the insulation is left intact, somewhat better results will be obtained in addition to the ease of making connections.

#### REPEATING COIL

The repeating coil is a means of connecting, without interference, a telegraph or phantom telephone over a pair of conductors which are being used for voice communication, and a means of connecting a common battery line to a local battery line.

The repeating coil is a voice-frequency and ring-through coil with a 1 to 1 impedance ratio, suitable for connecting two 600-ohm telephone circuits together. The "line" windings of the coil are balanced so that the line may be simplex for telegraph or phantom telephone use. The loss through a coil of 1,000 cycles is approximately 0.75 db and the efficiency at ringing frequencies is approximately 80 per cent. The size of the base upon which the coil is mounted is  $5'' \times 3\frac{1}{8}'' \times 5/16''$ . Usually the coil is mounted on the back of the field switchboard and is connected in a line that is to be used for telegraph or phantom telephone or when a common battery line is connected to a field switchboard.

The Coast Artillery Board found that the repeating coil was not so successful for use in telegraphing or in connecting a phantom telephone circuit, but was success-

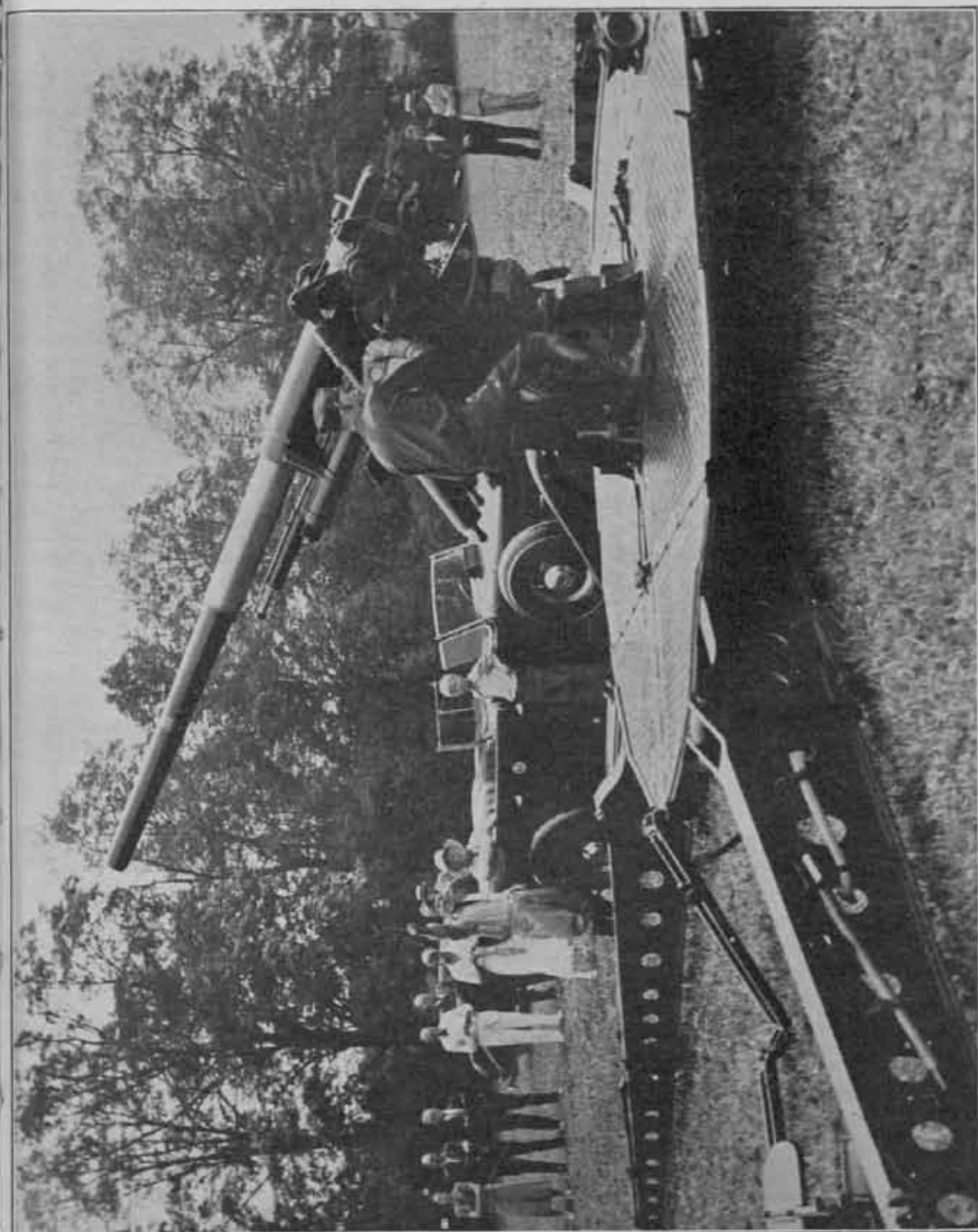


*Repeating Coil, Type C-161.*

ful in connecting a common battery line to a local battery line. Two repeating coils are to be permanently mounted in the new six-line field switchboard and four in the new twelve-line switchboard.

The use of the loading coils and repeating coils will assist to a considerable extent the work of the communication section of a mobile battery in obtaining and maintaining good telephone communication over field lines.





*"Marvelously mobile — I wish we had more of them."—Franklin D. Roosevelt.*

# Determination of Local Hour Angle of a Celestial Body

BY MAJOR D. W. HICKEY, JR., C.A.C.

THE determination of azimuth from astronomical observation is a phase of training which should be taught to each artillery officer during the early years of his service. Since mobile artillery regiments are moving into new fields for firing, artillerymen are finding more frequent use for this interesting problem. The task of orienting a gun is sometimes made simpler by the use of a Polaris observation. When it is impracticable to close a transit traverse for any reason, a celestial observation enables one to get a closing azimuth for adjusting the traverse.

The problem of solving the astronomical triangle, Pole-Zenith-Celestial Body, is simply one of putting the latitude of the position, the declination (or heavenly latitude) of the celestial body, and the Local Hour Angle (L.H.A.) of that body into a formula, turning the crank, and coming out with the bearing angle of the star or of the sun. The determination of the latitude of the position is easy. It may be found on a harbor chart, a good map, or in any other handy source of such information. The declination of the celestial body can be found in an Ephemeris, a Nautical Almanac, or in one of the condensed tables of astronomical data which are given away by the manufacturers of transits. The process of finding the L.H.A. is the hard part, and it is to show how this may be done most easily that this article is being written.

During the past several years the Coast Artillery School has been teaching a different method of finding the L.H.A. from that method shown in the "Orientation" manual, T. M. 2160-25. The method has found favor with all students, and they find it much easier than the method described in the text.

## DETERMINATION OF LOCAL HOUR ANGLE OF A STAR

The method described in T.M. 2160-25 is one of first finding the Local Sidereal Time (L.Sid. T.) and subtracting from it the Right Ascension (R. A.) of the star. The result is L.H.A. of the star. The method is a step by step process of determining the L.Sid.T.

Let us find the L.H.A. of Polaris by the newer method. We first find the Greenwich Hour Angle (G. H. A.) of the star, and correct the G.H.A. by the longitude of the place of observation. The result is L.H.A. The saving in time and brain effort comes from the fact that all Ephemeris data is figured for the meridian of Greenwich, and we save work by doing as much of our computation as possible at Greenwich, before swinging through the arc of our longitude.

It is necessary to have time to the nearest second, and the date of the observation. The exact Standard Time of

the observation is recorded. This time is next recorded according to the 0-24 hour clock. Next the time difference of the central time meridian from Greenwich must be added, to get Greenwich Civil Time (G. C. T.) for the moment of the observation. If an observation had been made at 6:30:00 P.M., E.S.T., on September 30, 1936, at Fort Monroe, Va., first add 12 hours to get 18:30:00 (0-24 hrs.) and add 5 hours more to get 23:30:00 which is G.C.T. of the observation.

Next look into the Ephemeris (or any other table of astronomical data) and find that at the beginning of the day (September 30) or at Oh G.C.T. the Sidereal Time was Oh 34m 14.6s.

Perhaps some one will not understand what is meant by Sidereal Time. There are on the Celestial Equator, two points where the Ecliptic (or sun's apparent yearly path through the heavens) intersects the Celestial Equator. These intersections are called the Vernal (or Spring) and Autumnal (or Fall) Equinoxes. They may be considered for the purposes of this discussion as being approximately fixed positions in the heavens. The Vernal Equinox (V.E.) has the same apparent motion as do the stars, making 366.2422 trips across our upper meridian during a tropical year, while the slower sun makes only 365.2422 such transits. The Hour Angle of the V.E., or the counter-clockwise angle between the upper

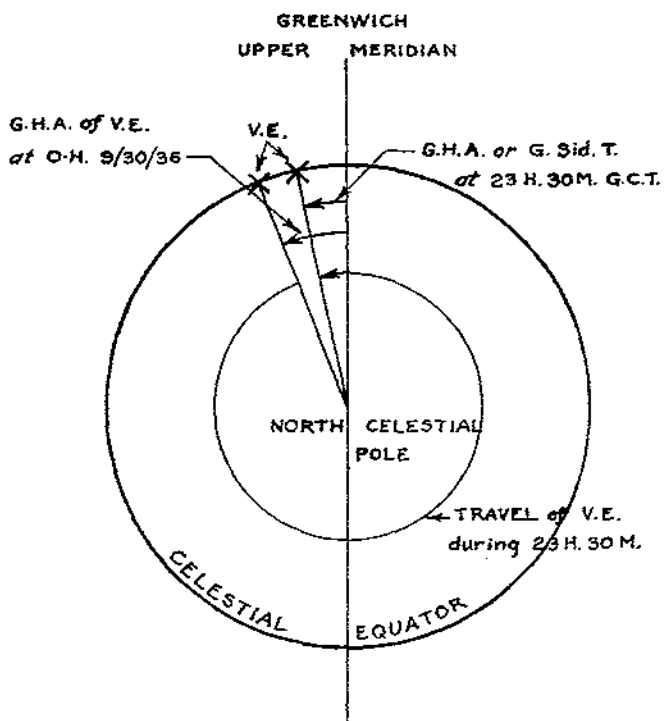


FIG. 1.

meridian and the V.E., as viewed from the South Celestial Pole, is called Sidereal Time. (Fig. 1.) Sidereal Time is merely an arc, expressed for convenience in terms of time rather than in terms of arc. The Sidereal Time at Oh G.C.T. means that at the beginning of the day (September 30) the V.E. was 34m 14.6s (time) beyond the upper meridian of Greenwich. This fixes the position of the V.E. at Oh G.C.T. September 30, 1936.

But we know that the V.E. travels at a greater angular velocity than the mean sun, and in every mean time (or clock) hour, gains 9.856 seconds on the mean sun. So at the time of the observation, or 23.5 hours past Oh G.C.T., the V.E. has travelled 23 hours and 30 minutes, plus  $23.5 \times 9.856$  seconds beyond its Oh position. The G.H.A. of the V.E. at the moment of the observation is then found to be

H	M	S	
00	34	14.6	(G.H.A. of V.E. at Oh G.C.T.)
plus	23	30	00.0 (G.C.T. interval since Oh G.C.T.)
plus	00	03	51.6 (Gain of V.E. during 23.5 hours G.C.T.)
<hr/>			
24	08	06.2	

or 8m 6.2s (arc expressed in time) past the upper meridian of Greenwich.

Just as gun batteries and lighthouses have coördinates, so have stars. Where the lighthouse has terrestrial latitude measured from the earth's equator, and terrestrial longitude, measured from the meridian of Greenwich, stars have celestial latitude and longitude. Celestial latitude is called declination, and is measured in degrees, minutes and seconds of arc, North (plus) or South (minus) of the Celestial Equator. Celestial longitude is called Right Ascension (R.A.) and is measured in hours,

minutes, and seconds (time) in a clockwise direction from the V.E. (Fig. 2).

If one looks into the 1936 Ephemeris on page 318, he will find that the Right Ascension of Polaris is, for Oh G.C.T. on September 30, 1h 41m 56.09s, and for the time of observation (23h 30m G.C.T.) is 1h 41m 56.6s. The position of Polaris with respect to the upper meridian of Greenwich should next be determined.

Figure 2 shows the heavens as they would appear to an observer on the South Celestial Pole. Greenwich's upper meridian, the position of the V.E. at the moment of observation, the angle representing the R.A. of Polaris, and the position of the star are shown. Sidereal Time minus R.A. is Hour Angle of a star. In different words, if we go counter-clockwise from the upper meridian of Greenwich through an arc equal to the Sidereal Time we arrive at the position of the V.E.; and if we then go clockwise from this point through an angle equal to the R.A. we arrive at the star. The counter-clockwise angle from the upper meridian to the star is the hour angle of that celestial body. It will be expressed in time, since the Sidereal Time and the R.A. are both expressed in time. In the example, the G.H.A. of Polaris at time of observation is:

	H	M	S
G. Sid. T.	00	08	06.2
minus R.A. of Polaris	01	41	56.6
<hr/>			
G.H. of Polaris	22	26	09.6 (expressed in time.)

Since one hour of time equals 15 degrees of arc; one minute of time equals 15 minutes of arc; and one second of time equals 15 seconds of arc, the G.H.A. of Polaris at the moment of observation may be expressed in terms of arc as  $336^{\circ} 32' 24''$ .

The longitude of Fort Monroe, Va., in arc, is  $76^{\circ} 18' 24''$  West. (Fig. 3.)

The Local Hour Angle (L.H.A.) of Polaris, from the upper meridian of Fort Monroe, Va., is then found to be

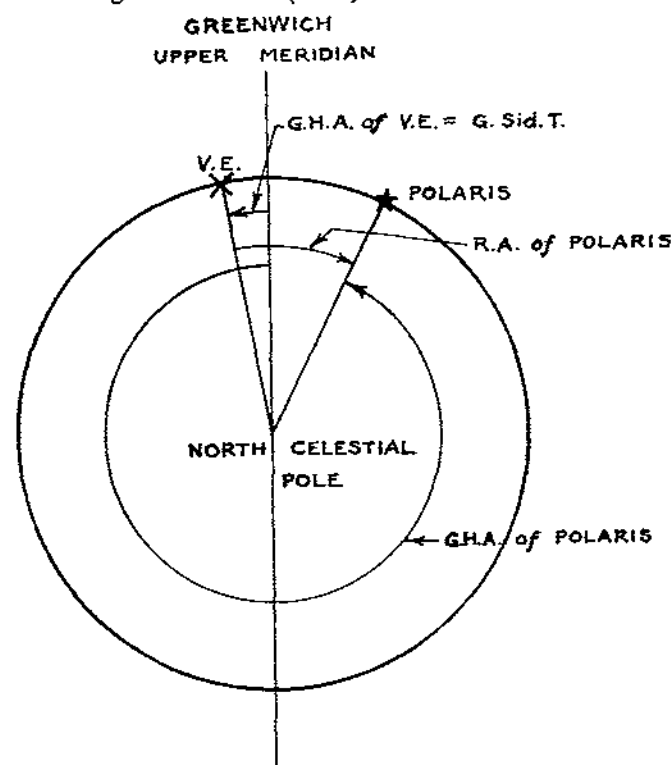


FIG. 2.

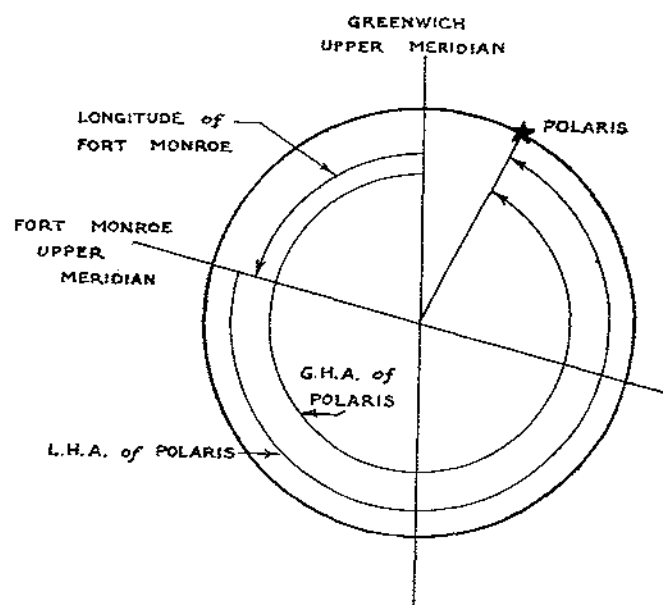


FIG. 3.

the G.H.A. corrected by the longitude of Fort Monroe, or  $258^{\circ} 14' 00''$ .

#### DETERMINATION OF THE LOCAL HOUR ANGLE OF THE SUN

The steps necessary to determine the L.H.A. of the sun, for the solution of a solar observation, are somewhat similar to those taken in obtaining the L.H.A. of a star. First, we find the G.C.T. of the observation. If a solar observation had been made at exactly 10:00 A.M., E.S.T., on September 30, 1936, at Fort Monroe, the G.C.T. would have been 15h 00m 00s. The next step is to find the Greenwich Apparent Time (G.A.T.) or the position of the real sun with respect to the lower meridian of Greenwich. This angle is measured counter-clockwise. (Fig. 4.)

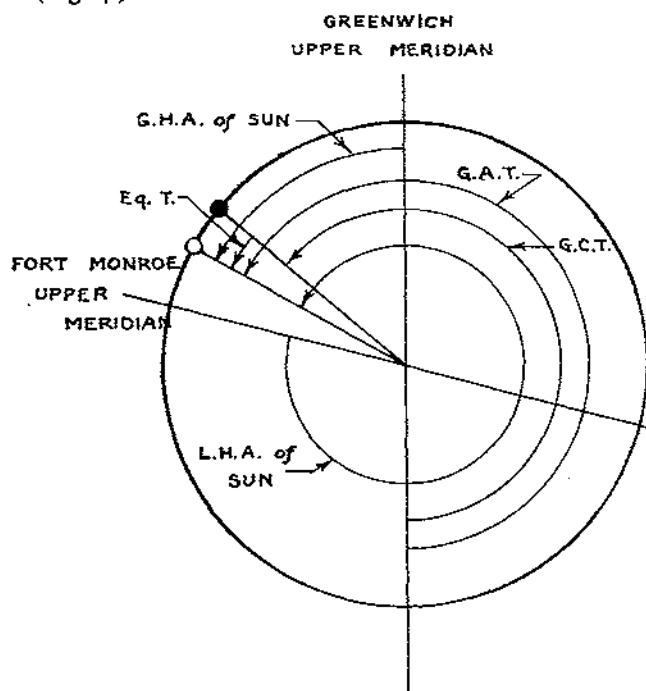


FIG. 4.

The real sun has an apparent motion around the earth, which, due to the travel of the earth along its orbit, is non-uniform from day to day. In order to get days of equal length, there is a *fictitious* or *mean* sun, which passes around the earth at a uniform rate. The difference in time between these two suns is called the Equation of

Time (Eq. T.), a value which is to be found in the Ephemeris. To find Apparent Time (position of the real sun with respect to the lower meridian) take mean (clock) time and correct it by the Eq. T.

The Ephemeris shows that at 0h G.C.T. on September, 30, 1936, the Eq. T. was plus 9m 50.67s, and was increasing at the rate of 19.60 seconds per day. Therefore, at the time of observation, or 15 hours after 0h G.C.T., the Eq. T. was plus 9m 50.67s plus  $\frac{15 \times 19.6}{24}$  or plus 10m 02.9s. This value added algebraically to the G.C.T. of observation places the real sun at an angle of 15h 10m 02.9s from the lower meridian of Greenwich, in a counter-clockwise direction. The angle, 15h 10m 02.9s is Greenwich Apparent Time of observation, and when it is corrected by 12 hours (the time difference between upper and lower meridians) represents the G.H.A. of the real sun. In this case G.H.A. of the real sun is 3h 10m 02.9s, or expressed in arc, it is  $47^{\circ} 30' 43.5''$ . When this G.H.A. of the sun is corrected by the longitude of the place of observation, the result is the L.H.A. of the sun. In this example:

G.H.A. of real sun	47°	30'	43.5"
Longitude of Ft. Monroe	76	18	24.0

L.H.A. of real sun      331    12    19.5      (See Fig. 4)

Now that L.H.A. has been determined for a star or for the sun, the True Azimuth of the celestial body may be calculated by means of the formula given in paragraph 53 a of T.M. 2160-25 "Orientation." This azimuth must be corrected by the grid divergence to get grid azimuth.

A method of solving the celestial triangle, which is easier and quicker than the method mentioned in the preceding paragraph, is the method set forth by Lieutenant Ageton, U. S. Navy, in Hydrographic Office Publication No. 211. In this method the celestial triangle is solved through the medium of secant and cosecant functions; and the author has provided tables of log secants and log cosecants. The Ageton method has been taught at the Coast Artillery School with success for several years.

The process of finding North is of importance to the Coast Artillery officer. Good orientation is vital to good shooting, and shooting is our main mission in life.





# Winter Convoy

By CAPTAIN N. D. YOUNG AND LIEUTENANT C. L. MACLACHLAN, C.A.C.

THE great majority of maneuvers and marches by the Regular Army are not conducted during the winter months. The purpose of this article is to describe some of the troubles that were encountered on a march during severe weather and the lessons learned therefrom.

Battery "A" 61st C.A. (AA) with 111 men and 4 officers under the command of Captain Nevens D. Young, left Fort Sheridan, Illinois, at 6:00 A.M. on March 16, for Fort Belvoir, Virginia. The convoy consisted of 17 trucks, 3 searchlights with power unit, and 2 motorcycles. Although all snow drifts from an exceptionally rigorous winter had not melted, the roads in Illinois and Indiana were clear and in excellent condition; the calm before the storm. Arrangements had been made to use the facilities of National Guard armories at each overnight stop, therefore no tentage was carried. Each man had five blankets, in addition to the regular field equipment; the armory floor provided a none too downy couch. A gasoline-burning range installed in a kitchen truck furnished hot meals for the entire battery.

Because of the recent heavy turnover in personnel and the many inexperienced drivers, it was decided to move slowly during the early stages of the march; at no time did the speed exceed 25 miles per hour. The Battery reached Napoleon, Ohio, at 9:30 P.M., after an uneventful day's run; distance covered, 255 miles; average speed 16½ miles per hour. All agreed that this rate of travel over good roads was entirely too slow.

The following morning the column was on the road at 7:00 A.M. with Butler, Pa., as our objective, a distance of 250 miles. Almost immediately things began to happen and we ran into unexpected difficulties. The temperature was below freezing and many of the trucks had to be towed to get them started. Anticipating mountain grades in Pennsylvania, and to conserve our old equipment, the Duplexes (with searchlight) were being towed by Federal trucks, using especially constructed tow-bars. In making a stop for a traffic signal one Duplex skidded on the icy pavement, bending the tow-bar so that it could not be used. Tow-bar trouble caused three halts in the course of an hour.

During the afternoon the roads became more deeply covered with snow, the drifts deeper and more frequent; with the result that trucks were continually getting stuck. The motorcycle drivers came in for a lot of grief in trying to reach the head of the column to report halts. About 3:00 P.M. the column was blocked; it was reported that in the next four miles there were twenty-five commercial trucks unable to move. Finally we secured permission to stay in the high school gymnasium in the small, hospitable town of Nova, Ohio. In place of the expected 250 miles, we had covered a total of 107 during the day.

To add to our trouble the gasoline stove was out of order, but fortunately the domestic science department of the high school boasted a three-burner kerosene stove; this did yeoman service in providing cooked meals for 111 hungry men. Our radio brought in alarming reports of the flood disasters along the middle Atlantic seaboard. Would we be able to get through Pennsylvania even after the roads were cleared? The important question was, when would they be cleared? Radio reports, reports from truck drivers and statements from Highway Commissions, all conflicting, kept us in a state of impatient suspense.

The next day, March 18th, was spent in checking information, notifying military authorities of our position, and finding a new location. It was found that we could move into the National Guard Armory at Ashland, Ohio, ten miles away, and by the following day the road was clear enough to make this move. An interesting feature of the stay in Nova was the instruction given the domestic science class in large scale cooking by our mess personnel.

In Ashland better facilities were available and the personnel was more comfortably quartered. Instructions were received to proceed at the discretion of the battery commander. A reconnaissance toward Akron, Ohio, proved that we could make a start, although a serious industrial strike in that city made us apprehensive of trouble with uninformed pickets. In the meantime flood conditions in



Many vehicles were stuck in the snow.



Harrisburg, Pa. and Washington, D. C. (both on our route) caused us to wonder if the elements had conspired against us.

At 11:00 A.M., March 21, we resumed the march with Butler, Pa. (134 miles away) our destination. Snow drifts made progress slow and we covered only 50 miles in a little over three hours. Road conditions grew steadily worse. At 6:00 P.M. near the Ohio-Pennsylvania line, we were averaging about five miles per hour. Trucks became stalled and mechanical troubles developed. Fearing that we would again be compelled to find local shelter, the 1st Sergeant was sent in his own car to reconnoiter and to make bivouac arrangements. For several miles he broke the trail, uncertain as to whether or not he was on a road. The depth of the snow varied from six inches to two feet; the weather was miserable and the motorcycles had to be loaded into trucks. The convoy had to be divided, and five vehicles, under charge of an officer, were left to catch up if and when they could.

By 8:00 P.M. the main column had crossed into Pennsylvania where the roads were found to be in a better state of clearance. Our rejoicing was not for long, for we presently came to a low bridge that would not clear the Duplexes. All detours were blocked, there was nothing to do but unload the searchlights, remove the truck bows and reload on the other side. After half an hour of strenuous labor and blocking civilian traffic, we set out for Butler, which was reached by the last unit at about 1:00 A.M. Supper and breakfast combined was served at 1:30 A.M. and an exhausted battery of Coast Artillerymen found little difficulty in getting to sleep on the armory floor.

Army convoys are not supposed to travel on Sunday, except in case of emergency, and Sunday, March 22nd, was largely a day of rest. The gasoline stove was repaired, vehicles were refueled, and a road reconnaissance made to Harrisburg. Road conditions appeared favorable except that Harrisburg was partly under water.

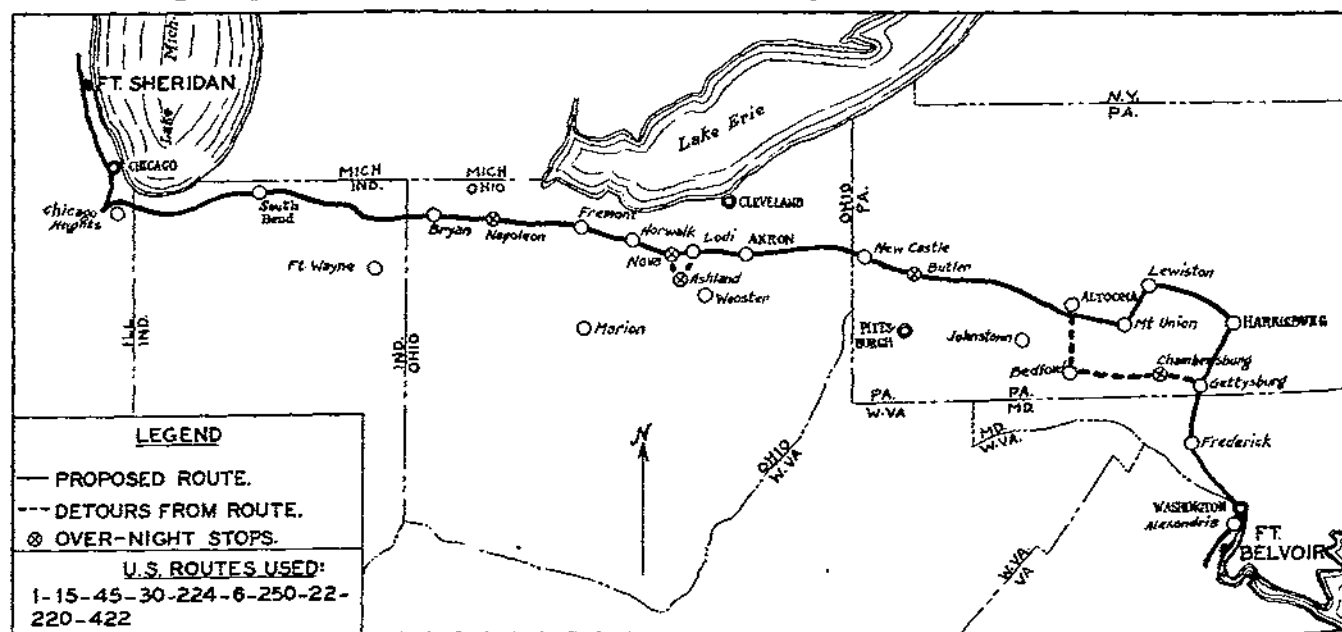
At 7:00 A.M. the next morning we started the 223-mile trek to Harrisburg over the Pennsylvania mountains. Better time could be made by putting the slowest vehicles (Duplexes in tow) in front, giving them the full advantage of down hill momentum to assist in carrying them up the next grade.

For the first time on the trip the temperature was above freezing and we proceeded without incident, averaging twenty miles an hour until about 11:30 A.M., when a chance report from a commercial truck driver (later verified) informed us that two bridges on our route were washed out. A decision was made to change to Route 30 through Bedford, Pennsylvania. Later permission was obtained to bivouac in the National Guard Armory at Chambersburg, Pa., leaving an easy 130-mile jaunt to Fort Belvoir for the next day. The column reached Chambersburg at 6:45 P.M., completing the first entirely satisfactory day's run of the trip.

The next morning the trucks were cleaned up as much as facilities permitted, preparatory to the march through Washington, D. C. We left Chambersburg at 9:30 A.M. and stopped near Gettysburg battlefield for a short talk on its historical and tactical significance. The convoy reached the District of Columbia at 2:00 P.M. with a morning's average of 32 miles per hour running time, and arrived at Fort Belvoir at 4:15 P.M., having covered 812 miles under unfavorable conditions of roads and weather.

Several lessons were learned from our experiences. These are passed on for the benefit of others who may be confronted with a similar problem. Probably the greatest difficulty centered around the number of false and exaggerated reports concerning road and flood conditions. While all available sources of information should be utilized, a personal reconnaissance, backed by good judgment, must be the deciding factor.

There is a disagreement between the authors on the question of motorcycles. Captain Young doubts their value as against the hazard of accident under bad road



conditions. Lieutenant MacLachlan believes they are a great aid in traffic control and message service, and they can always be loaded on trucks when roads become impassable. One criticism is that on rutted dirt roads the side car wheel is mostly "up in the air." Since none of the wheels of the proposed motor tricycle track, the difficulty would be even more serious.

If chains are used to facilitate traction on snowy or icy roads, remove them when a good stretch of clear cement is encountered, as they wear rapidly on a hard-surfaced road.

Over poor roads or mountain grades convoys should be split into sections of not more than 25 vehicles.

An officer, other than the commanding officer of the convoy, should be appointed Agent Finance Officer so he can settle all bills after the command has left the bivouac.

The columns should be closed up when passing through towns and small cities. Be sure to arrange for a police escort in passing through large cities. In small

towns, only the head of the column need stop for red lights if the convoy is well closed up.

Refuel at crossroads where more than one pump is available.

For winter convoys make sure that there is anti-freeze mixture in all radiators and be prepared to change viscosity of oil and grease when a marked change in temperature is to be expected.

The overseas cap is unsatisfactory. A cap modeled after that worn by the New York City Police would be neat and military; would hold its shape and would not blow off. A bag, similar to the musette bag should replace the haversack. When troops dismount at bivouacs area or mess stops, the haversack, carried by a chance strap, with belt, holster and accouterments dangling in space, certainly looks unmilitary.

We take this occasion to acknowledge our appreciation for the hospitality and coöperation of city officials, National Guard personnel, and civilians, with whom we came in contact.



265th Coast Artillery, Florida National Guard, Firing  
155 mm. Guns at Key West, Florida

# The Army of the United States from 1830 to 1840

By COLONEL EARL W. THOMSON, C.A.-Res.

IN that decade preceding the roarin' forties, the United States was a land of paradox. Although living under the repressive laws of their Puritan forefathers, which prohibited such minor evils as gambling, dancing, and working on the Sabbath, the people were accustomed to violate these laws whenever it suited their convenience or personal desires. Even though imbued with the Revolutionary love of liberty, the men of the era universally demanded the trappings of military rank, because of their service in the militia and volunteers. However, there were less than one thousand regular army officers among the large number of titular colonels and majors.

Pride in the victories and exploits of their army and navy was a national characteristic, and yet their legislative representatives cut the army to a total of 8,000 officers and men. Military expenditures decreased almost to the vanishing point. Here was a young country with pride in its accomplishments, with glory in its history, and self-confidence in its system of government, so strong that, as Carlyle said, "all Yankee-doodle-dom blazed up like one universal soda bottle," when Capt. Hall, Miss Martineau, Mrs. Trollope, and Charles Dickens made disparaging statements with regard to its institutions. Stephen Leacock aptly phrases it: "The nation was full of power, of noise, of vain-glory, of boastfulness, of roaring optimism, of clever crookedness, and of universal hope."

The greatest American paradox was the Army. During these years of "peace" it waged continuous war along the northwestern, southwestern, and southern frontiers. The Black Hawk War occupied the Army in 1832; the Seminole War was waged in the swamps of Florida from 1835 to 1842; the Creek disturbances in Alabama were settled in 1837; and the Cherokee disturbances occupied the years from 1836 to 1839. Even on the northern frontier there was not always peace, for the border disturbances in New York and Maine during the Patriot War of the Canadians in 1838 almost caused a rupture in diplomatic relations with the mother country.

The War of 1812 had been one long series of strategical and political blunders. There was a lack of organization in the line and staff, insubordination among commanding officers; and inefficiency, lack of discipline and actual disobedience among the troops. Moreover, there was the additional handicap of inexperienced officers, a high rate of desertion among the men, lack of coöperation from the governors of many of the states, and an absence of popular ardor. But in spite of these seemingly insuperable obstacles the War was carried to a victorious conclusion through the helpful mistakes of

the enemy, and the victories of an infant Navy, which aroused the belated enthusiasm of the people.

The battle of New Orleans, as Walton says, was "a singular combination of fortunate circumstances, the English lost their way, fired into each other, adopted foolish rumors, disobeyed orders, neglected precautions." General Jackson, with a typically American genius for practical things, organized his mob of regulars, volunteers, and militia into an army, and finished the war with a handsome victory after the signing of the treaty of peace.

The size of the Army varied greatly in the succeeding years. In 1814, when peace was declared, there were 31,053 regulars under arms, but the Act of March 3, 1815, reduced this number to 10,000, "with such proportions of artillery, infantry, and riflemen as the President shall judge proper." By 1819 the Army was quite unpopular due to the expense of the first Seminole War and the elaborate plan for the fortification of the seacoast. In 1820 the Army was further reduced, this time to 6,000, by skeletonizing some of the regiments. Many valuable officers were "deranged, razed or transferred," promotion was at a standstill, and the personnel was low in morale. Congress felt that "an army of officers, with high pay and emoluments, and without employment, would be a mighty engine of executive influence." Here was yet another paradox, for though the army officers did not mix in political affairs, they reached presidential rank: Jackson of New Orleans, Harrison of Tippecanoe, and Taylor of Buena Vista.

Congress made little change in the Army during the next fifteen years. In 1832 was added a corps of rangers which was expanded into a regiment of dragoons in 1833. At the end of 1837 the Army numbered 7,958; as a consequence of the Seminole War this number was increased to 11,000 in 1841. The end of this War (1842) saw a reduction from 12,539 to an authorized strength of 7,590. During the Mexican War the Congress authorized a regular army of 30,350, so that in 1848 there were under arms 1,338 officers and 22,695 men of the regular army, together with 1,527 officers and 21,590 men of the volunteers. Again came reduction in the regular forces, this time to 865 officers and 8,940 men. The history of the United States was repeating itself. Preparedness was shattered by the policy of political parsimony.

The Mexican War was a strong contrast to the War of 1812. Led by Scott and Taylor, the armies won several remarkable successes. The military was sustained by a more efficient administration in Washington and by a popular enthusiasm, particularly in the South, which filled the ranks with volunteers. There were, however,

disadvantages in the use of volunteers; enlistment periods were too short and at their end the volunteer felt free to return home, even if in the midst of a campaign. There always has been great difficulty in inculcating a proper military spirit in free Americans, who view all men as created equal. To the freedom loving pioneer, especially, the discipline of the army was distasteful. The newspapers fostered this attitude by publishing letters from enlisted men relative to the shortcomings of their officers. The system of brevet rank (nominal promotion when on duty with units larger than the usual command of that rank) caused bad feeling among the officers. Maintenance of relative rank has always been a fetish in our army.

The history of the era included the organization of the first and second regiments of dragoons. A dragoon was a type of soldier who served either afoot or on horseback. He was a descendant of the knights templar, and an ancestor of the modern mechanized cavalry.

As the frontier advanced westward and came to the plains west of the Mississippi the need was felt for faster movement than that provided by foot soldiers, particularly for the pursuit of the marauding Indians. Secretary of War Cass recommended the establishment of a corps of mounted men, so that six hundred mounted rangers were authorized in 1832—these were but a group of uniformed, self-equipped horsemen. By an act of March 2, 1833, the First Regiment of Dragoons was established, and from this time on cavalry has been a permanent branch of the service.

The Second Dragoons was organized at Jefferson Barracks in 1836, because of the necessity of protecting the frontier settlements and the trains of prairie schooners over the widely extended area of the west. The equipment of these dragoons was sabres, saddles, pistols, and carbines. Without the dragoons on the western frontier the subduing of hostile Indians and the emigration of the friendly Indians would have taken a much longer time.

Black Hawk, Chief of the Sacs, was the leader of the enemy Indians in the northwest. Feeling strongly that his people had been deceived in the Treaty of 1804 he exclaims in his ghosted autobiography: "Why did the Great Spirit ever send the whites to this land to drive us from our homes, and introduce among us poisonous liquors, disease, and death? They should have remained in the land where the Great Spirit first placed them."

#### DEVELOPMENT OF ARTILLERY

During this period the artillery was maintained chiefly in separate regiments. In 1814 the regiments of artillery were consolidated to form the Corps of Artillery, but this ceased to exist in 1821. In 1832, with the reestablishment of the Ordnance Department, there began the development of the field artillery, with the testing by the department of two different types of carriages, the "stock-trail" and the Gribeauval. Before this most of the artillery was occupied with the engineers along the coastline, with the infantry mainly along the frontiers of the south

and the west. Prior to the advent of rifled guns, accuracy and rapidity of fire were lacking. The artillery went into position so far back from the front line that for it to be under the fire of the opposing infantry was considered a disgrace. Prince Hohenlohe of the Prussian Army, when firing at 1,000 paces, considered that "The first shot is for the devil, the second for God, and only the third is for the King." This sounds somewhat like the *coup de flambage* of the French, and the "By guess and by God" of the British during the World War. The light artillery moved farther forward in this decade, so that at Palo Alto it unlimbered at 250 yards and went into action against the redoubts at 50 yards. According to Walton: "The efficiency of the light artillery at the start of the Mexican War was ascribed to Brevet Major Samuel Ringgold, who by his skill and experience (acquired at the Cavalry School at Carlisle, in the polytechnique school of France, and that of Woolwich in England) was able to organize the corps and conduct it so well at Palo Alto as to contribute materially to the victory." In this war the siege trains, the mountain howitzers and the mortars were served by Ordnance officers. The mobility and speed of service which had been acquired by the field artillery enabled it to keep close up to the infantry even over the roughest ground and to be at the right place when wanted.

Up to 1840 we had the same old flintlock, smooth-bore musket, as had been used in the Revolution, with paper cartridges, and loaded by twelve commands: Load; Open Pan; Handle Cartridge; Tear Cartridge; Prime; Shut Pan; Cast About; Charge Cartridge; Draw Ramrod; Ram Cartridge; Return Ramrod; Shoulder Arms.

In 1845 the percussion cap was adapted to the smooth-bore muzzle-loader, but although military rifles had been made in 1814, the great mass of American infantry were armed with smooth bores as late as 1855. The first American breech-loading gun was Hall's flintlock rifle musket, caliber .512, of which 10,000 were issued to the Army in 1818. This was followed by Hall's percussion rifle of 1832 with a caliber of .54. Simplification of commands came much later when the ten or twelve commands were reduced to "Load at Will."

To supplement West Point, the Artillery School was established at Fort Monroe in 1823-24, and "a school for the practice of infantry" at Jefferson Barracks, Mo., in 1826. The establishment of these schools lessened the number of men and officers available for duty along the frontiers. The opening of the school at Fort Monroe in 1824 caused the abandonment of Fort Dearborn at Chicago. For many years all the brevet second lieutenants graduated from West Point, were sent to the school at Fort Monroe.

Captain Basil Hall, Royal Navy, the first of the group of unappreciative British travellers, in his *Travels in North America in the Years 1827 and 1828*, describes the works at Old Point Comfort:

"The excellent anchorage of Hampton Roads is a place of great importance as a naval station. Heretofore it has

been left quite defenceless, but the American government having lately included it in their extensive list of sea-coast fortifications now in progress, all was bustle and advancement.

"Next day, I walked over Fortress Monroe in company with the commanding officer, and the chief engineer. This fort when completed is to mount 340 guns, and will require a garrison of 5,000 men to defend it properly. I was told that it covers an area of 60 acres, the intention being to make it a depot for military stores, as well as a rallying point for the militia and other troops, in the event of a threatened invasion. . . . About one-third of the Fort was completed when I saw it, and ready for the guns, but it was far above ground along the whole circuit.

"The garrison of Fortress Monroe, at the time of my visit, was about seven hundred strong, chiefly artillerymen and engineers besides a considerable number of slaves, and other labourers.

"I was in time for the evening parade on the 7th of February, 1828, and for the first time in the United States saw a regular body of troops under arms. About 200 men were drawn up, amongst whom were no fewer than twenty-four officers, principally cadets sent from the Military Academy at West Point, to acquire a more thorough and practical knowledge of their business. The appearance of these troops was very soldier-like, and in every way creditable to the superintendence of the experienced officer in command of the station."

#### PUSHING WESTWARD

The western military frontier came into being soon after the War of 1812, with the adoption of the policy of expansion and occupation west of the Mississippi, and with the development of the line of military posts from the Great Lakes to the Red River. From 1819 to just prior to the Mexican War, the frontier seemed to progress like the frog that succeeded in getting out of trouble by jumping forward three paces and sliding back two. In 1819 the greatest advance on the Mississippi to the north was to Fort Snelling, Minnesota, and up the Missouri to Fort Atkinson, Nebraska, 800 miles above the mouth of the Missouri. Fort Gibson, a few miles above the junction of the Canadian with the Arkansas River in Oklahoma was the most advanced southwestern outpost from 1824 until the founding of the Texas Republic. Between the two extremes was Fort Leavenworth, Kansas. For thirty years the line connecting these forts formed the military frontier of the United States.

The duties of the army at these frontier posts were as numerous as the abilities of its soldiers. The military usually preceded the civil authority, and so the country developed under military control. The land had to be purchased from the Indians, and then these Indians had to be persuaded to emigrate farther west, with the Army either leading or in pursuit. Squatters had to be removed from the new lands allotted to the Indians.

The great westward movement of the Indians followed the Black Hawk War. With the Indians went the mili-

tary—to protect them from the native tribes and the increasing white population; another job for the frontier army. The Government furnished rifles to all Indians who agreed to move, so that by 1837, 10,000 rifles had been given the emigrants. These they used indiscriminately against the native tribes, the white settlers, the soldiers, the Spanish, and for inter-tribal warfare. It became necessary to awe the Indians by a display of force; so the infantry, and later the dragoons, were sent into hostile country to show their strength, make investigations, settle differences, and draw up treaties. By 1834 about 35,000 Indians had been removed to the West, and 90,000 still remained east of the Mississippi. At this time the Indian Country was established in the region west of Arkansas Territory. The garrisons of the frontier were called on to police this territory; to issue passports to foreigners; to remove squatters; to arrest persons dangerous to the peace; to seize spiritous liquors, destroy distilleries and in general to maintain law and order.

In 1835 Colonel Dodge with his dragoons conducted an expedition to the Rocky Mountains, holding councils with the Indians, and showing the might of the United States in a well uniformed and disciplined regiment of horsemen. This was the most extensive military campaign in the West.

Previous to the Mexican War, during the struggle over the Texas Republic the border situation was tense. Indian raids across the border, smuggling of powder, Texan captives, the kidnapping of negroes, and the desertion of many soldiers to the Republic caused trouble. Although Texas and Mexico effected an armistice in 1843 this seemed merely to cause greater trouble between the United States and Mexico and led finally to war.

As a nation we have been taught to believe that our star of destiny always has been in the ascendant and that our accomplishments are proof positive of our superior initiative and energy—national characteristics in which we sometimes take undue and unwarranted pride. Therefore, it may not do any harm to look in the mirror and see ourselves through the eyes of others. Quite naturally the English are the severest critics. It should cause no great surprise to find an article published in 1822 in the *United Service Journal and Naval and Military Magazine* entitled "Notes on the Army of the United States of America," from which the following excerpts are quoted:

"It is an extraordinary fact, but not the less true, that nearly one-half of the noncommissioned and privates of the American Army desert every year. . . . The great extent of the territory of the States, with a scanty population, causes wages to be high, and provisions to be cheap. Generally speaking then, the most worthless characters enter the army, which consists of a *mélange* of English deserters, Dutch, French, Americans, &c. Five dollars is the monthly pay of a private, and many labourers in the States earn a dollar a day: so it is obvious that there is a great inducement to belong to an army which is held in no estimation by the citizens generally, and has no pension-list or asylum for disabled soldiers.

"The moral culture of the American soldier is wholly neglected; and in the States attention to this important point is perhaps more necessary than in any other country. Detached, as the troops are, in small posts, to overawe the Indians of the north-west and western frontiers they unavoidably become demoralized, from contact with the wild beings and vagabond hunters, in the midst of whom they live. . . . Habits of intemperance are very common in the American army, and, as is to be supposed, almost all crimes committed by the soldiery are to be traced to these fruitful sources of evil.

"As may be supposed no great attention is paid to uniformity of dress in the American army—officers wearing forage caps according to their own taste, frock coats variously trimmed, and fancy swords; the favorite one has a hilt like that of the sword which the Prince of Denmark usually wears on the stage.

"I said that officers are tempted by high pay to remain in the American service, and truly they require it. Stationed for years in the back woods, without society, few of them devoted to the sports of the field; books difficult to be obtained; their duties are far from agreeable, and their situation often most unpleasant.

"There are about 50 military posts in the States: forts, barracks, and arsenals; the two former to overawe the negro population, &c; the latter contains the arms of the regulars and the militia. The officers seem to dislike Indian warfare very much; complain of the hardships attending 'bush expeditions'; the treachery of the enemy; their ambushes and surprises, and cruelty to prisoners. There are yearly many skirmishes with the Indians which are not made public.

"In the barrack squares of Louisiana I observed the punishment of hard labour, with a log and chain attached to the foot of the culprit; flogging is also practised; and solitary confinement is often resorted to.

"There is nothing worthy of remark in the system of drill in the American army; they borrow from the British and French.

"It is a notorious fact, that all Americans will never walk when they can ride in a waggon; they are much disinclined to active sports and pedestrian exercises of any kind; and even the children are never seen to run, or engage in out-door-games like English boys; so it is impossible that American soldiers can march with the British."

Our English commentator goes on to say that it seemed to be the policy of the Americans to extend the Maine boundary to the St. Lawrence River, and with the help of the Russians to exclude the British from the territory of British Columbia and the Pacific and then concludes: "These gentlemen ought to be watched."

This British officer liked the situation, and course of study at West Point, but did not enjoy the cadets:

"The cadets are confined to their halls of study for about ten hours per day! They seemed to be very well prepared with their exercises, but had a yellow, unhealthy look, stooped, some wore spectacles, and from October

to March they hardly ever move out of doors, or take active exercise; it was really painful to see young men under such rigorous system. . . . As no watch is kept over the cadets at night, some leave their rooms and repair to haunts of dissipation among the hills, known only to themselves, where they meet women of loose character, eat pork and molasses, drink, and chew tobacco—which last is an accomplishment of American youths of all ranks.

"It will now be naturally inquired what figure do the Cadets who pass the ordeal of West Point make in after life—are they distinguished in the walks of science, and do they contribute to the literature of their country? The answer to this is, that they are never heard of after they leave West Point.

"A word on the militia of the United States. The system and administration are radically bad, and imperiously call for alteration; in fact the mere mention of the American militia excites ridicule in the citizens themselves. . . . A muster in the state of Vermont last summer may serve as a specimen of the whole. The privates turned out in their usual working dresses—belts and pouches over surtouts, long coats and round jackets; feathers red, green, and blue . . . some had broomsticks for muskets, and others muskets without locks. The band sent forth martial music from seven bass drums, a fife, and a fiddle; and the colonel (as usual a tavern keeper), with a huge broadsword at his side, could not attend to his duties for mixing "gin sling" behind a tree, wherewith to inspirit his gallant troops.

"To conclude. In reviewing the military system in the States, we find that, owing to the nature of the institutions and habits of the people, it is very defective. . . . But, with all this, having had an opportunity of seeing the greater number of the States, I am convinced that the Americans being such a clever, shrewd, and intelligent people, if they saw a pressing necessity for an immediate alteration in the military system, would set about it.

"Instead of feeling petty jealousy at the growing prosperity of America, we ought to be proud that so vigorous a scion has proceeded from the tree of Old England."

The period was indeed a busy decade for the Army. The "successful blunderings" of the War of 1812 had taught a lesson which was bearing fruit in a progressive evolution in organization and tactics. The frontier was being pushed toward the west, the army in the van. The regular army was developing so that it was ready for the Mexican War and its succession of victories. But many of their troubles have not been settled to this day, chief among them the necessity for sufficient appropriations, and a clarification of the relation of the political to the military. Our regular army is still too small for its duties, but it serves as a cadre of trained professional soldiers, to be reinforced in time of necessity with National Guardsmen and Reservists. The "practical genius" of the American people is still with us, and building upon that as a foundation we have gone far, and will go farther.



# The Legion of the Lost

BY INVICTUS

I HAVE not been to Leavenworth and, barring an Act of God, I am never going. The reason is immaterial: it may be too many satisfactions, or too many bad breaks, or too many years. It may even be some dismal little ghost that clanks its chains whenever an adjutant general approaches my 201 file. But that is all unimportant. The only thing that counts is this: I am not going to Leavenworth and I know it.

With those words and that knowledge I automatically qualify for permanent membership in that thriving and fast-growing brotherhood . . . the Legion of the Lost. Frankly, I would sell my membership in this order for a song for I find my fellow legionaries a sorry lot. Their shoulders sag, their eyes are lack-lustre, and they continually weep in their beer. This was not always so. For more years than you need know, I tramped the long, hard road with these same men. They were a different lot then. Their step was elastic, their eyes bright, their jaws firm, and they downed their beer to a rollicking soldier song. Yes, they were a different lot then and it was an honor and a pleasure to share the dusty road with them. But now they are fit company for nothing better than the perpetual enjoyers of ill health; they have abandoned their claim to the proud profession of the soldier.

Because I know these men and their worth, and because I am distressed at the dry-rot eating out their hearts, I am going to give them hell. If they retain even a vestige of that sturdy common sense that characterized them a few years ago, they will recognize the justice of my indictment on the one hand and on the other will see that their situation is not as hopeless as they believe.

Let's approach this whole Leavenworth question on a solid basis of facts. These are few and simple. The Command and General Staff School can accommodate just so many students and no more. Of that number the Coast Artillery quota is 21. To select these there has to be some basis of comparison. At present there is only one—the efficiency report. Therefore the efficiency report is used. These records are divided according to the age brackets; the officers in each bracket who have the best records go. And that is the beginning and the end of the Leavenworth selection despite your fine rumors of influence, political and otherwise.

There are your facts and not all the bellyaching in the world will alter them one whit. Therefore you have only one course left open to you—accept them.

Very well, you accept them. But that doesn't help your morale at all. If anything it steps it down another notch for in the very acceptance you acknowledge the fact that the Leavenworth door has swung shut on you and that your career is at an end. Let's examine this career angle a bit for therein lies the root of all this monstrous bitterness.

## The roads to the rear will glitter with fallen stars.

Now I could well start off by reminding you that our old friends, the Great Captains, worried along to their immortal niches in history without benefit of service schools. But that will not soothe you because you will immediately point out that there were no service schools in those robustious days, and that if there had been this gentry would have made the very first list. Oh, would they? Are you sure of that?

I wonder if the undisciplined, hard-drinking, hell-raising Alexander would have made the grade in our democratic army? How many superiors would the effeminate, army-hating, young Frederick pull down today? Would Cæsar, whose military activities did not begin until something after forty, ever see his name on a Leavenworth list? How far would the monumental intolerance and contemptuous attitude of the aristocratic Wellington advance him in this day of higher military education? And how would the one-eyed Hannibal fare, or the hump-backed Luxembourg, or the undistinguished Grant, or the illiterate Forrest? No, my fellow legionaries, I am forced to the sorry conclusion that these great and near-great soldiers and hundreds like them were not Leavenworth caliber. That is an item that merits a little thought when you can spare a moment or two from your discussions and damnations of the current selections.

But let's get back to the matter at hand. You are not going to Leavenworth: what are you going to do about it? At present you are doing a number of very silly things. First, you are bellyaching that fact night and day to anyone who will listen. You have become past masters of the alibi and apologists *par excellence*. Curiously enough you appear ignorant of the fact that your unwilling audience is generally bored by your harrowing tale of injustice and usually contemptuous of the individual who displays his emotions for public inspection.

Second, you are tearing into those fortunate and decidedly worthwhile men who have made the list as if your own career depended upon the thoroughness with which you demolished both their professional and private reputations. Friendships of long-standing are forgotten, and forgotten also is that ancient Act of Congress which proclaims you officers and gentlemen. In passing, it might be worth while to remind you that the venomous word seldom reaches its target but always its originator.

Third, you take particular delight in exposing the absurdities, the fallacies, and the injustices inherent in the existing method of selection. Surely you must know that those grave deficiencies are thoroughly recognized by the War Department. In fact, it is likely that they can point out many flaws that have never occurred to any of us.

There can be no question that they would welcome a

new and fool-proof system. Yes, I know you have one, and it's a honey; it would land *you* out in Kansas at the beginning of the next school year. If, however, you put it up to a vote it would only pull down a handful of supporters—those who would directly benefit by it. The rest of the Army would howl. Actually I am willing to lay a bet that any ingenious soul who can devise a more equitable system will be rewarded with one of the much-coveted Leavenworth scholarships.

Your fourth current activity is entirely in keeping with your first three. Those of you who feel that you still have a chance, no matter how remote, are deliberately turning on the heat. You confront your immediate superior with the statement that your future lies in his hands. You must have a superior report or you are through. Those who have grown shameless in their desperation put it up to their commanding officers bluntly; the rest do it by indirection and innuendo. It is a shameful thing to see an officer divest himself of the pride and dignity of his position and adopt the rôle of mendicant. Think it over, my brothers, and try to visualize the contempt you would hold for such a beggar-at-arms. But, in addition to that, consider the position in which you place your commanding officer. In effect you tell him that by one word he can forever damn you. That is a terrific load for any man to shoulder even when he knows that the supplicant is far from the definition of a superior officer. And unfortunately, the responsibility has been too great for many a reporting officer. At the present rate it will not be long before we have the absurd situation of an officer corps that is solidly superior.

The fifth and final consideration applies to those of you who know full well that Leavenworth will never be graced by your presence. You have accepted that fact and with it you have adopted an out-and-out defeatist attitude. "What's the use?" you say. "We're licked. We're through." And your work reflects your words and your thought.

Now, my confrères, this fifth point is the real reason for this paper. If I can convince you that you are not licked, that you are not through, then this unprecedented mass hysteria will gradually subside and with it will go the ridiculous and unsoldierly practices that I have already enumerated. Of course, if you have closed your mind to the matter and take a certain masochistic pleasure in your self-appointed martyrdom then neither I nor anyone else can induce a more rational state of mind. And indeed I am not at all sure that it would be worthwhile if we could. Therefore it is only to those who have not yet reached the ultimate hinterland of defeat that I offer the following observations.

\* \* \* \* \*

For the past few years I have been conducting a one-man Institute of Public Opinion. To pink-cheeked second lieutenants, to leather-necked colonels, to sour-pussed legionaries, to graduates and non-graduates of Monroe, of Leavenworth, of the War College, I have asked this

question—"If war broke tomorrow, and you had any choice in the matter, what duty would you elect?" To date there has been only one answer—"Command duty." Even when the subject at hand was noted as a corking good staff officer and notorious as a poor troop leader, the reply was the same—"Command duty."

This merely illustrates the well-known fact that we came in this man's army to be leaders of men and we still cherish that idea. When the drums start the long roll we don't want to be trapped in a swivel chair behind an imitation mahogany desk. Now the question is this: To whom will these command plums fall on M day? The Leavenworth boys? Well, let's see.

Two years ago the course at that famous school was cut to one year in order to double the number of graduates. This was not, as many of you seem to think, a benevolent gesture on the part of a paternal War Department. Armies are not run by altruistic motives. Actually the Leavenworth output was doubled because it was discovered that there were not enough graduates to man even half *the staff positions* in the major units of a war-time army.

So what? So this—you uneducated barbarians of the legion are going to roll to battle at the head of fighting commands—battalions and regiments. And that, mind you, is only a beginning as I hope to show you in a minute or two. But meanwhile where are our Command and General Staff School friends? If you call the headquarters rosters of our war-time divisions, corps, and armies, you will locate them nearly to a man. Their fighting tools will be ranged about them—maps, Humphtreys scales, road rollers, colored pencils, typewriters, and that great god of modern warfare—the mimeograph. Will they be content with this rôle of glory? Well, would you?

Now so far you agree with me but beyond this point you have objections. You are willing to admit that you will fall heir to a battalion or a regiment, but to a higher command—never. If you base this assumption on a month or two of war you are perfectly correct unless, of course, the existing system is changed as it may well be in the event of a major scrap. Yes, the brigade, the divisions, and the corps will undoubtedly go at the start to the alumni of dear old A.W.C. But if the war goes on for a while as wars usually do—what then?

You know the answer to that one too. France, Germany, England, Russia, the United States—all of them learned the answer in the Great War. They found that the hot shots in peace were too often just that—hot shots in peace. The result then and the result tomorrow will be the same: the roads to the rear will glitter with fallen stars.

And where will the *new* stars blossom? On the worthy and deserving shoulders of Leavenworth's old grads? A few will but only a few. To discover the reason for this you need no more than a superficial knowledge of human nature. These men will be passed over because of two things—because they are too good or because they are too bad. If a commander finds his G-men batting close to 1.000 he will move heaven and hell to keep them

with him. He can't advance them beyond the grade appropriate to his staff or he will lose them. Nor can he celebrate them too widely lest they be taken away by some higher commander for his own staff or to head a fighting unit. Therefore, with rare exceptions, the better the staff officer the smaller his chance. You needn't take my word for this; verify it yourself by the people who know what happened in the last war. As for the others, the washouts, they are either herded back toward the S.O.S. or sometimes given a chance with the line. But at the best they have two strikes against them and they know it.

All of this brings us back to the question asked a moment ago—where will the new stars blossom? And the answer is pat and final. Most of them will fall to you howlers in the outer darkness who have established your claim to them *by preparation in peace and performance in battle*.

At this point my colleagues will manage a hollow laugh: this preparation in peace—where will it come from with the halls of higher learning forever closed to us? That question, actual or implied, marks the curious blind spot of the average Leavenworth shut-out. Today, with service schools or without, an officer's professional knowledge is limited by only two things—his will to learn and his ability to learn. Never in the history of this country or any other country have there been such opportunities for the student of war. Military libraries abound. Invaluable books on the art of war are published at popular prices. Current thought of foreign armies is abstracted in English, indexed and cross-indexed, and published four times a year for the mentally thirsty. Month by month the service journals interpret the past, proclaim the present, and attempt to divine the future. And finally out of hallowed Leavenworth itself come the extension courses—the heart and soul of that very learning you pant for.

Now, my brothers, if your talent be so sickly that it must be spoon-fed by those highly competent practitioners at Leavenworth or die, then it is better for the Army's sake and for the country's sake that it die now. Do not delude yourself with the idea that that great school can make a Frederick out of a Daun or even a Daun out of some of us. Not all the schools in Christendom will ever make a great commander; the great commanders will make themselves with, without, and possibly in spite of schools. When Gibbon says "the power of instruction is seldom of much efficacy except in those happy dispositions where it is almost superfluous," he speaks a fundamental truth. The Legion would do well to keep it in mind.

But peace-time preparation does not begin and end with cerebral activities. Physical and moral preparation are at least equally important. Of the physical side I need say nothing: its necessity is self-evident and our profession itself is admirably adapted to building and maintaining a robust health. I mention it here only to remind you that it is still a talisman of successful battle leadership and that without it you might just as well reconcile yourself to a non-combatant rôle.

On the other hand moral preparation does require a few words by way of explanation. At the present writing few of you legionaries are morally equipped to wage war no matter how great your erudition or how stout your health. The Leavenworth madness has eaten away your moral resiliency. In your over-emphasized adversity you have gone down. You have lost the *will to succeed*. You have forgotten that anyone can give a dazzling performance on the crest of the wave but that only the morally great can fight their way back to that foaming crest after it has broken over them. In war only the morally strong survive. The battlefields of the world are littered not so much with men who were defeated as with men who *admitted* they were defeated. Had our Revolution been led by a man less endowed with this moral quality than Washington we would probably be part of the British Empire today. Had little Prussia had anyone at the helm but Frederick she would have gone the way of Poland.

Today, you are confronted by a situation that is fundamentally artificial. Its importance exists more in your minds than in actuality. If your moral stamina is of such a saffron hue that it can not surmount and subdue this specter of peace-time failure surely the most elementary common sense must tell you that you are not morally equipped to dominate and lead a fighting command.

I can offer no sovereign remedy for this moral jaundice. It is not a collective problem. It is an individual problem and the individual must solve it himself. If he does not solve it he is no more prepared for battle command than a six-months-old child.

In summary then, your peace-time preparation falls logically into three interlocking spheres . . . the educational, the physical, and the moral. Prove yourself in these and I think you need have no concern about your destiny in combat. If you succeed there, your rise to the major command rôles will not be predicated upon graduation from any school . . . not even grammar school.

And so at long last I come to the final question: What if there be no war? For the benefit of any of our pacifist brethren who might happen on this essay I hasten to explain that this query is not a lament for war. No, whatever else the legionaire may be, he is not a death-and-glory boy: the years have left that behind. With that momentary digression at an end, I turn to the matter of our remaining years on the assumption that peace endures.

First, then, a dip into prophecy. Regardless of the merit of the present system of selecting students for our two senior schools, the fact remains that it is enormously unpopular. Year by year the opposition grows and that opposition does not spring exclusively from the ranks of the legion. Therefore I foresee the day, and that not far off, when this rigid system must and will be discarded. In its place I look for some adaptation of the out-and-out competitive method used by the French in connection with their *École Supérieure de Guerre*. Whether this be better or worse than our existing system is relatively un-

important. The important thing is this: it will, at a single stroke, excise the cancerous growth that afflicts our officer corps today. And for that reason, if none other, it is coming and coming soon. Thus, for many of you the door that now seems irrevocably closed may yet swing open.

Of course, I realize that you will not accept me in the rôle of prophet. But even if you did it would scarcely elicit any enthusiasm if you happen to be in your late forties or suffer from ulcers of the duodenum, fatty degeneration of the heart, or kindred ills of the flesh. So, then, I discard the prediction and have at the matter as it stands.

Now, my worthies, a little G-2-ing reveals three thoughts that nourish this Leavenworth lunacy. They are:

1. No Leavenworth—no prestige.
2. No Leavenworth—no hot detail.
3. No Leavenworth—no War College—no stars.

Since these things disturb you I award them a few paragraphs.

I think you will agree with me that prestige is not absolute but relative. Moreover you will admit that there are two types of prestige: the prestige that goes with a position such as the Presidency of the United States or the command of a regiment, and the prestige that accrues to an individual as the result of an outstanding performance in some position. For instance, you may have established a considerable reputation as a company commander, or S-3, or rifle shot. So long as you occupy that particular rôle and continue to measure up to past performance, just so long will you enjoy the prestige that accrues to a highly competent company commander, S-3, rifle shot, or what have you. Remember this: prestige does not accrue to the person who is theoretically best but to the one who actually demonstrates that he is best. I rather imagine that there were a good many men much better qualified theoretically for Forrest's job than was Forrest; and yet Forrest seemed to hang on to it without any difficulty.

That's one point, and here is another. Leavenworth breezes off with the reinforced brigade, bears down hard on the division, and tapers off with the corps and army. The War College starts off in the military stratosphere and ends there. All this is very fine and very necessary but when these graduates return to compete with you as company and battalion commanders I fail to see wherein their knowledge of the corps and army is going to be any great help in the jobs they are going to be called upon to do (general staff assignments are something else again). When the Old Man looks over your outfit and your competitors' he will look for results . . . not diplomas. You still enjoy a fair field and no favorites.

A final word on this prestige business. How many of you know, as a matter of fact, whether your battalion or regimental commander is a graduate of either Leavenworth or the War College? My poll showed that darned few of you knew or cared. Those officers were your seniors and they enjoyed the prestige and the respect that went with their positions regardless of their school record. If

they acquitted themselves well they enjoyed the second type of prestige I mentioned earlier. All of this should suggest that the Army is not pointing a finger at you and saying, "Yah, Bill Jones didn't get to Leavenworth." No, my brothers, memory is brief and interest transient unless preceded by the little word *self*.

Now for the hot detail question. Perhaps I should preface this with the hoary observation that "One man's meat is another man's poison." Failure to make the prep school for the War College blocks you from the General Staff Eligible List and so from all the staff jobs open to those boys. I'm sorry but I can't get around that one. If your heart yearns for a desk job in a corps area headquarters in a big city you have my sympathy but not my understanding. With our own troop commands plus National Guard, Organized Reserve, and R.O.T.C. assignments, we have a field that no one man can master. What matter if some Guard or Reserve outfit demands a Leavenworth man? There are plenty of other outfits that don't and it's a big country. You will find plenty of hot details in those four categories not to mention others that occasionally pop up for the deserving, such as a tour with the faculty or tactical department at West Point, a language detail in China or Japan, an attaché job if you are well heeled, and so on. You will gather that I am not convinced that the hot detail is reserved exclusively for the Leavenworth alumnus.

This brings me to the third thorn in your flesh—no peace-time stars. Right you are my lads; there will be no peace-time stars for us. But as a matter of interest how many stars are reserved, say for the current Leavenworth class? That class is some 200 strong. Less than half will get to the War College. And of these about six will wear stars. Meanwhile, compute if you can the years of fantastic labor, scarred by worry, envy and bitterness, that end in heartbreak for those who ran well but not best.

Finally, I suggest that you conduct a thorough-going self-examination. It is just possible, you know, that you might not be Leavenworth material. And if you discovered that fact yourself it might help you to soften your opinion of those who discovered it a long time ago. Of course, there are many of you who have more than met all the requirements for this school and yet will never go. Indeed, it is said that in the Coast Artillery alone the number of eligibles comes close to the six hundred mark; this year 21 go. The deduction is too obvious to make.

But whether you be deserving or undeserving, you must somehow contrive to evolve a personal philosophy that will restore your sense of values and your sense of humor. We have many years left before us. There are still fine things to be done. There are still good soldiers to lead. There are still rousing songs to be sung, tall tales to be told, and good company to share. And if all these things leave you unmoved I offer you this last thought: At the end, though we boast neither the heavy-hearted honors of war nor the tinselled badges of peace, the flag will cover us as closely and taps will sound as sweet.

# The Coast Artillery Cup and the National Matches

BY CAPTAIN E. CARL ENGELHART, C.A.C.

IN 1922 at the National Matches, Captain Edgar W. King, then a member of the Coast Artillery Rifle Team, was pleasantly surprised to learn that he had won the President's Match. His achievement brought home the fact that there was no special trophy to be awarded to the high Coast Artilleryman in that important rifle match. Other branches of the service were provided for. The enthusiastic officers and men of the regular army Coast Artillery Corps promptly donated the fund for such a trophy. The money was spent for a silver cup about 21 inches, now valued at about \$600, engraved on one side "President's Match, Coast Artillery Corps" and on the other side "Presented by the officers and enlisted men of the Coast Artillery Corps, United States Army, to be awarded each year to the Coast Artilleryman making the highest score in the President's Match." Captain King's name was thereupon engraved on it as the first winner of the Coast Artillery Cup.

In 1923, Major James T. Campbell topped all of the other Coast Artillerymen shooting in the President's Match and his name went beneath Captain King's. Capt. R. W. Crichtlow followed in 1924, and Capt. C. F. Wilson in 1925.

The Coast Artillery Corps then withdrew formally from participation in the National Matches. For some time a Coast Artilleryman competing at the matches was as rare as a dodo, and the Coast Artillery Cup was returned to repose in the office of the Chief of Coast Artillery. Recently, however, it has been noted that the number of Coast Artillerymen winning places of merit on the various national guard and organized reserve teams has increased. In recognition of these efforts just prior to the 1936 National Matches the Chief of Coast Artillery again offered the Coast Artillery Cup for competition in the President's Match. The conditions agreed upon with the Secretary of the National Rifle Association of America are briefly as follows:

a. The Coast Artillery Cup is the property of the National Rifle Association for the purpose of award each year to the Coast Artilleryman making the highest score in the President's Match, but shall be returned to the Chief of Coast Artillery should the President's Match be discontinued or should the National Rifle Association cease to exist.

b. The designation "Coast Artilleryman" shall mean any officer or enlisted man of the Regular Army, National Guard, or Organized Reserve components of the Coast Artillery Corps.

c. In order to justify an award, there must be at least ten competitors (Coast Artillerymen) in the President's Match for that particular year.

The foregoing conditions were in effect September 4, 1936, when 1,879 riflemen fired in the President's Match, each one with the ambition of winning the match or at least gaining a place in the top hundred, "The President's Hundred."

Two Coast Artillerymen, out of the twenty-three who fired, placed in "The President's Hundred." Sgt. Marion Marelich, Hq. Btry., 250th C.A., was thirty-seventh, his score of 142 x 150 being outranked by twelve other scores of 142, a bit of hard luck. Sgt. Stephen W. Ross, Btry. A, 248th C.A., was fifty-seventh, his score of 141 x 150 also being outranked by twelve other scores of equal total.

To Sgt. Marelich, therefore, goes the honor of being the first of the new series of winners of the Coast Artillery Cup.

Marelich's organization, the 250th Coast Artillery, is a part of the California National Guard. It is a shooting outfit, for the California National Guard Team had as a captain and shooting member Lt. Col. David P. Hardy, the executive officer of the 250th C.A. Colonel Hardy, incidentally is the only Coast Artilleryman who holds a record in the National Matches, his perfect score of 50 with ten V's in the 1933 Crowell Trophy Match (ten shots prone at 600 yards, any rifle) being as yet unexcelled or even equalled. Two other members of the 250th C.A., Sgt. Wm. A. Hancock and Sgt. Fred B. Rickborn were also on the California Team.

The Coast Artillery was represented on the Florida National Guard Team by 1st Lt. W. K. Ballough, Sgt. N. D. Abel, and Sgt. Rainsford H. French, all of the 265th C.A.

Illinois Coast Artillery had an individual competitor in Pvt. John V. Freitag of Btry. G, 202d C.A. Pvt. A. J. Houle of the 240th C.A. was the sole Coast Artilleryman on the Maine National Guard Team.

Rhode Island had Capt. Albert A. Moren as coach, and 1st Lt. P. E. Donnelly, 1st Sgt. Manuel Morris, Jr., Sgt. Anthony A. Moren, and Cpl. Leo Sevigny as shooting members, all from the 243d C.A.

The South Carolina National Guard Team included Sgt. C. M. McCall, Cpl. E. D. McCutchan, Jr., and Pfc. E. W. Moore, all of the 263d C.A.

The 248th C.A. placed four of its members on the Washington National Guard Team: 2d Lt. Ralph E. Dever, Mr. Sgt. Lloyd V. Stoddard, Pfc. Stephen W. Ross, and Pvt. Frederick Gibcke.

The Organized Reserves Rifle Team had 1st Lt. H. H. Kirby of the 538th C.A. and 2d Lt. O. C. Helseth of the 537th C.A.

In the team matches, the Washington National Guard entered an eight-man team in the Infantry Match, half

of the team being Coast Artillerymen. This match is a skirmishers' musketry problem, the team advancing toward the butts from the 600-yard firing point; shooting whenever the targets are exposed. The scoring method is as complicated as some of our Coast Artillery target practice formulae, but this condition may account for the success of the Washington team with its 50% quota of Coast Artillerymen. When the results were published, the Washington National Guard was second to the U. S. Marines and was followed by the Regular Cavalry and Infantry. In the National Rifle Team Match, Lt. Dever, Pvt. Ross, and Pvt. Gibcke were again on the Washington Team which finished in ninth place for Class A medals. In the National Pistol Team Match, Lt. Dever was the sole Coast Artilleryman on the Washington Team. This time the Washington National Guard finished thirteenth, again in the medal class.

Col. Hardy's California National Guard Team was unfortunate in the Infantry Match, finishing in thirteenth place, just two points below the medal class. In the National Rifle Team Match, however, with all four of its Coast Artillerymen firing, the California National Guard Team placed twenty-third for Class B medals.

The Organized Reserve Team in the National Rifle Team Match used both Lt. Helseth of the 537th C.A.

and Lt. Kirby of the 538th C.A. and finished eighteenth for Class B Medals.

The following is a summary of some of the individual accomplishments of the foregoing Coast Artillerymen in the National Matches:

Sgt. Marion Marelich, 250th C.A. (California): Leech Cup Match—Bronze State Medal. Marine Corps Cup Match—Bronze State Medal. President's Match—Thirty-seventh place; Coast Artillery Cup; Special Silver Medal; "President's Hundred" Brassard; Bronze State Medal.

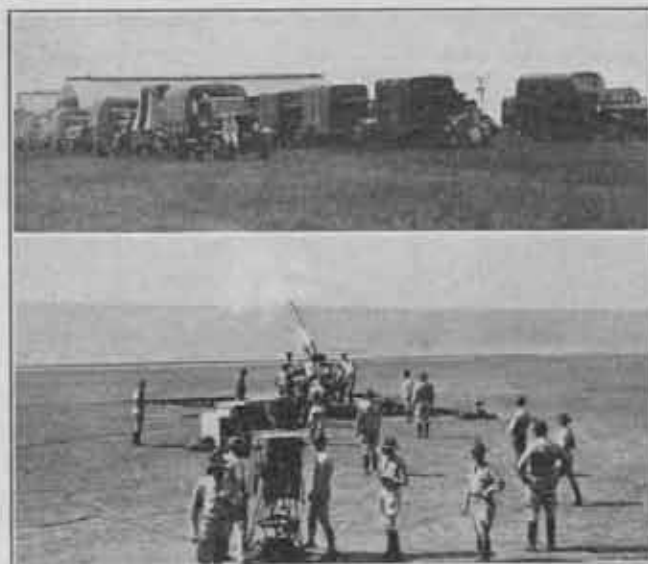
Sgt. Wm. A. Hancock, 250th C.A. (California): National Individual Pistol Match—Thirty-eighth place; Bronze Medal.

Sgt. Stephen W. Ross, 248th C.A. (Washington): Citizens' Military Championship Match—Fifth place; Gold Medal. National Individual Rifle Match—Twelfth place; Gold Medal. President's Match—Fifty-seventh place; "President's Hundred" Brassard.

Sgt. Rainsford H. French, 265th C.A. (Florida): Marine Corps Cup Match—Bronze State Medal.

Sgt. Norman D. Abel, 265th C.A. (Florida): Members' Trophy Match—Bronze State Medal.

The above Coast Artillerymen are to be sincerely congratulated. To the others, better luck in 1937!



974th C.A. (AA) —N.G.—Fort Crockett, Texas



## NEWS AND COMMENT

### The United States Coast Artillery Association



*"The purpose of the Association shall be to promote the efficiency of the Coast Artillery Corps by maintaining its standards and traditions, by disseminating professional knowledge, by inspiring greater effort towards the improvement of matériel and methods of training, and by fostering mutual understanding, respect and coöperation among all arms, branches and components of the Regular Army, National Guard, Organized Reserve and Reserve Officers' Training Corps."*

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#### Well Deserved Recognition

ON November 1, Lieutenant Colonel E. E. Bennett, who for nearly four years has edited and managed The COAST ARTILLERY JOURNAL with marked success, left Washington for his new station at Fort Totten, N. Y.

During his tenure of office, Colonel Bennett has been confronted with unusually adverse conditions. He took over The JOURNAL during that dismal period when the pay-cut and pay-freeze were in full effect; a period when many individuals could not support The JOURNAL because of lack of funds. Other circumstances, too involved to relate here, combined to render his prospects for success discouraging.

To the solution of the many pressing problems, Colonel Bennett gave a vigorous and energetic devotion. He spared neither time nor effort, and in the face of discouraging and disheartening circumstances, surmounted

these obstacles by his outstanding attention to duty. The position of The JOURNAL has been strengthened both in reader interest and financially.

The increase in the number of paid subscriptions, during his management, as shown on page 262 of the July-August issue is a real tribute to his ability. The true significance of this accomplishment can be appreciated only by those who know that the expense of producing a magazine changes but little with the number of copies printed, whereas the revenue derived from subscriptions varies directly with the number of subscribers. A small percentage increase in the number of subscribers will make the difference between success and failure.

As a result of the limited number to whom the JOURNAL makes an appeal, operation at a loss is normal. Each copy costs the management more than the subscriber pays for it. No longer is paid advertising permitted to make up the deficit. Accordingly, Colonel Bennett applied himself to the problem of making up this difference. By distributing the gains derived from collective buying, among the Coast Artillery personnel at large, he has built up an increase of nearly fifty per cent in the other activities in which The JOURNAL is engaged. This healthy gain has resulted from Colonel Bennett's untiring efforts to reduce overhead, to build up good will, to meet every order no matter what difficulties it involved, and to reduce the profits on each transaction to a minimum, all with a view to increasing the volume of business. That the amount of such transactions has increased by nearly one-half during a period of less than four years is indicative of the satisfaction experienced by those who have dealt with him. Officers might subscribe to The JOURNAL through loyalty to the Corps, but they will not trade through The JOURNAL unless its services are superior and it saves them money.

It has been a difficult thing to ascertain exactly what sort of material our reading public wants. Criticisms were always welcomed although difficult to obtain and sometimes so diversified, and often diametrically opposed to one another, as to be of limited value. The real criterion of the satisfaction or dissatisfaction of subscribers is the subscription list. The figures already referred to speak for themselves and are evidence of the success attained by Colonel Bennett.

To him the COAST ARTILLERY JOURNAL, the Coast Artillery Association, and the Coast Artillery Corps at large owe a debt of gratitude. No one outside The JOURNAL office can realize the devotion, the resourcefulness, and the enterprise which he has devoted to his mission. These same qualities, carried to his new command, insure to him the success that he so justly deserves. His place will indeed be most difficult to fill.

### Our Editorial Bow

OUR first duty as Editor is to secure from the members of our Corps—Regular, National Guard, and Reserve—their loyal support, without which The JOURNAL cannot survive. This support must be continuous and progressive and a proper return must be had by each member for his aid.

We hope not only to maintain the present high standards, but to stimulate greater interest and to increase the usefulness of this publication to the Corps.

The assistance of every Coast Artilleryman is essential in order that The JOURNAL may progress. We need not only your financial backing and aid in obtaining subscriptions from non-subscribers but your active support. Criticisms and suggestions are welcomed, for without them your desires cannot be met. This is your JOURNAL. It will be managed and edited as you desire.

We always need suitable articles of professional or general interest. It is hoped that those qualified will come forward and submit for consideration articles to extend the interest in and the instructional value to be derived from The JOURNAL.

\* \* \*

### Election of Officers

THE Constitution of the Coast Artillery Association provides for an Executive Council of nine members to be elected by ballot from among Coast Artillery officers. This executive council or governing body must be continuing and normally five members are elected one year and four on the alternate year. The constitution further provides that five of the nine members be from the Regular Army, two from the National Guard and two from the Reserves. This year, due to the fact that the last two Chiefs of Coast Artillery have not served full terms which upset the normal procedure, the term of office of only three members of the Executive Council expire on December 31, 1936. They are:

Major General John J. Byrne, N.Y.N.G.  
Lt. Col. Harold F. Pride, 507th C.A. (AA)  
Lt. Col. Sanderford Jarman, C.A.C.

To fill the above vacancies the President of the Association appointed a nominating committee to place in nomination the names of competent officers. This committee found that there were many officers qualified to fill these vacancies but many had to be eliminated from final consideration because they were considered as not available for meetings in Washington. In order to have a quorum, which is essential for the conduct of business, at least five members of the Executive Council should reside in Washington or be available for meetings there. The committee has submitted for consideration the names of the following officers:

Brig. Gen. William Ottmann, N.Y.N.G.  
Colonel C. J. Mund, C.A.-Res.  
Colonel Clifford Jones, C.A.C.

Brig. Gen. William Ottmann is well known to all Coast Artillerymen. He is at present Commanding General of the Coast Artillery Brigade, N.Y.N.G., and was for many years commanding officer of the 212th N.Y. N.G. regiment. He is an officer of real ability, has a wide circle of friends and is an outstanding supporter of the Coast Artillery Association and The JOURNAL.

Colonel C. J. Mund, C.A.-Res., is the Commanding Officer of the 627th C.A.-Res., and has a long and distinguished military record. Throughout a very active life Colonel Mund's interest in the profession of arms has always been uppermost and is second only to his belief in reasonable preparedness and National Defense. He is the President of the San Francisco Chapter of the Coast Artillery Association, an enthusiastic artilleryman and another outstanding supporter of the Association and its JOURNAL.

Colonel Clifford Jones during his many years of distinguished service has had many and varied duties. He is now on duty in the Office of the Assistant Chief of Staff, G-4 in Washington. Practically all of his thirty-seven years of service has been spent in the Coast Artillery Corps and he has been very active in his support of the Association and its JOURNAL. He is best known to many Coast Artillerymen for his interest in their welfare while personnel officer in the Office of the Chief of Coast Artillery.

It is especially desired to impress upon all members of the Association that they are not required to accept the selections of the nominating committee and that they are free to make substitutions and to vote for any officer of their choice. If any member does not approve of the committee's recommendation it is desired that he enter his personal choice on the ballot in the space provided for that purpose.

Printed ballots will be distributed about December 1, 1936, or prior thereto. Normally, they will not be sent to individuals, as this has been found to be impractical, but they will be sent through regimental and post commanders, national guard instructors, instructors of the organized reserves and similar agencies. It is urgently requested that individuals accomplish the ballots and return them to the agency from which they received them, and that these agencies forward them promptly to the Secretary of the Association. In case a member of the Association should fail to receive a printed ballot it is requested that he record his vote informally. A copy of the printed ballot, which will be mailed out, appears below. Ballots should be mailed in time to reach the Secretary of the Association prior to January 5, 1937. They cannot be counted if they are received after that date.

It is very fitting at this time to express our appreciation to the retiring members of the Executive Council. They have, at all times, worked unselfishly for the best interest of the Association and given most generously of their time. Their active support and advice have aided greatly towards the achievement of the fine position that the Association and its JOURNAL have attained. They have

earned the sincere thanks of the members of the Association and we are glad of this opportunity to extend it to them.

1 1 1

## THE UNITED STATES COAST ARTILLERY ASSOCIATION

For Members of the  
Executive Council (1937-38)

- ☐ BRIG. GEN. WILLIAM OTTMANN, N.Y.N.G.  
*Vice Maj. Gen. John J. Byrne, N.Y.N.G.*
- ☐ COLONEL CHARLES J. MUND, C.A.-Res.  
*Vice Lt. Col. Harold F. Pride, 507th C.A. (AA)*
- ☐ COLONEL CLIFFORD JONES, C.A.C.  
*Vice Lt. Col. Sanderford Jarman, C.A.C.*

Fill in names of candidates of your own selection if so desired.

- ☐ -----
- ☐ -----

-----  
*Signature*

-----  
*Rank and Organization*

-----  
*Address*

(OVER)

### INSTRUCTIONS AND INFORMATION

1. The list on the other side is the slate prepared by a nominating committee to replace those members whose term of office expires on December 31, 1936.

2. Please record your vote by making an "X" in the appropriate square or indicate your choice by writing in the name of your candidate. Ballots received with signatures, but with no individual votes recorded will be considered proxies.

3. Each candidate was considered in connection with the geographic location of his residence and also the component of which he is a member. It is considered advisable to have at least five members of the Council resident in Washington in order to facilitate the transaction of business.

4. No member is to be deprived of a voice in the nomination and selection of the new members of the Council. If you do not approve of the Committee's choice, enter your personal choice in the space provided.

5. Ballots received after January 5, 1937, cannot be counted.

6. If you reside on a military post, please hand your ballot to the Adjutant to be forwarded together with all other ballots collected on the post. Members of the National Guard should turn in their ballots to the regimental headquarters to be forwarded at one time. Those members for whom the foregoing instructions are not applicable should mail their ballots to The Secretary, U. S. Coast Artillery Association, 1115 - 17th Street, N.W., Washington, D. C.

### Another Answer to an Editor's Why

IN the Coast Artillery Corps there is an annual objective prescribed—the U. S. Coast Artillery Association trophy. The Ninth Coast Artillery District (Organized Reserve) has succeeded in passing all competitors

and capturing this objective three years out of the past four. The question has been asked: "Why?" In my opinion the answer, while not a complex one, may be termed a "compound" one. It is a compound of the qualities embodied in the interested, enthusiastic, capable and incomparable reserve officers of the section, together with the Ninth Coast Artillery District (Organized Reserve) system known as the chain of responsibility, plus downright, worthwhile Unit Instructors. In other words Unit Commanders in the (Organized Reserve) District throw due responsibility for producing results squarely on their subordinate commanders. And where this responsibility is fullest, the results flow in most complete and most easily—most easily on all links of the chain concerned, because the load is most evenly distributed.

JACOB C. JOHNSON,  
Colonel, C.A.C.

1 1 1

### It Also Serves In Peace

ONE of the tasks which the Red Cross undertakes is to help men discharged from the peace-time Army or Navy because of physical disability, to rehabilitate themselves in private life.

If a man's disability is pensionable the Red Cross will, of course, assist him to prepare and file his claim. But whether he be granted a pension or not, it is probable that the discharged man will need employment to sustain himself and his dependents. Finding a job and making a living with a serious disability is not easy, especially at a time when many able-bodied men are without steady employment. Indeed, it is usually necessary to retrain the man invalidated out of service for some particular trade or work within the limits of his physical capabilities.

Men who have become incapacitated for work they have been accustomed to perform are eligible to receive training and placement in employment from the jointly financed federal-state Vocational Rehabilitation Service. Through the coordinated efforts of Red Cross field directors and chapters, arrangements are made for the men who become disabled in peace-time service to receive the needed training. If necessary, their maintenance and that of their families is provided during the training period. This last service is especially important since few of the states provide maintenance, nor will they act favorably on an application for the training classes unless maintenance is guaranteed in advance.

Aiding the man discharged from service for physical disability is, however, only one of the many ways in which Red Cross field directors and chapters help the men of the Army, Navy, and Marine Corps, and their families. A most common assistance rendered to service men is the verification of messages received by them from their homes urging their prompt return because of illness or death in the family. In these instances the Red Cross not only helps to secure a furlough, but frequently advances the travel funds, as a loan.

Army post families often need assistance with their personal problems just as others folks do and one of the jobs undertaken by the Red Cross is to give friendly and understanding help in such cases.

These and other activities for service men are supported by funds raised from membership dues at the annual Roll Call. Today more than four million Americans are sharing in this work by enrolling as members. Join!

/ / /

### "We Can Defend America"—Hagood

MANY readers who have been following Major General Johnson Hagood's recent articles in the *Saturday Evening Post*, especially the article "Rational Defense—Keep Out of War," contained in the issue of October 24, which had such a logical and strong appeal for the maintenance of peace, will be glad to know that he is publishing a book entitled *We Can Defend America*. It is understood that this book will be out in January from Doubleday, Doran & Company. We predict that the contents of this publication will be really worthwhile and will surprise you.

/ / /

### Antiaircraft Cruisers

THE September 16th issue of the *Army, Navy, and Air Force Gazette* contained interesting comments on the conversion of the cruisers *Coventry* and *Curley* into floating antiaircraft batteries. These two cruisers were brought forward from the Reserve Fleet, denuded of their normal armament, and fitted with numerous antiaircraft guns in an endeavor to counter the air menace to the Mediterranean Fleet on its concentration at Alexandria last autumn. It was concluded from this experiment that the special function of cruisers as floating antiaircraft batteries is not considered an essential requirement of a peace-time fleet and that the proper place for the antiaircraft defenses of a base is obviously ashore, with the many advantages of better communication, fire control, supply of ammunition, etc.

/ / /

### Law School Assignment

A LIMITED number of qualified captains and first lieutenants will be selected to pursue a course of instruction in civilian law schools with a view to fitting them for detail in the Judge Advocate General's Department. The Judge Advocate General is especially desirous that interested officers study very carefully circular No. 64, War Department, October 9, 1936, and correspond directly with his office as outlined therein.

/ / /

### Command Post Exercise, Fort Sam Houston

*Remarks by Major General Geo. Van Horn Moseley*

GENERAL MOSELEY spoke on the subject of "Logistics and the Supply of Large Units." He approached the subject from the point of view of the high

command and not from the point of view of the services and maintained that our success in the next great emergency will be in direct proportion to the extent to which we decentralize production to industry, and command to military men.

A frank defense of the General Staff, the principles underlying the organization of the American Supply System during the World War and strong argument for decentralization of the problems including complete separation of the control over railway and motor transportation were included. It was stated that no agency which is itself a shipper should be put in charge of transportation, for transportation must be equally available to all. The importance of the procurement sections of the Assistant Secretary of War office and the Army Industrial College were emphasized.

Regulating stations, their importance and methods of operation were discussed at great length. The fact that these all important elements require antiaircraft defense was stressed.

/ / /

### Floating Machine-Gun Targets

THERE are strong indications that at least one of the machine-gun battery commander's target practice prayers will be answered in the near future. Efforts are being made to have flotation gear attached to the standard antiaircraft machine-gun target to prevent it from sinking when dropped in the water and there is a possibility that the necessary gear can be attached to this target without seriously interfering with its towing characteristics. The development and use of a suitable target that will not sink will certainly benefit morale, aid training and will save many battery commanders from bitter disappointments.

/ / /

### Rating of Commissioned Officers

ARMY REGULATIONS No. 605-155, War Department, October 27, 1936, prescribe the method of rating according to efficiency which will be employed in the future. These regulations are worthy of a great deal of study on the part of all concerned for they contain important changes in the methods of rating and the requirements governing both annual and general ratings. The new regulations make it mandatory for the Chief of arm or service to personally determine the annual and general ratings, or to appoint a board of at least two officers to perform this duty. This is believed a step forward and in the interest of officers being rated.

/ / /

### Honor Roll

IT is desired to express our appreciation for the excellent results obtained *recently* by the officers listed below. Since the last issue these officers have materially strength-

ened the magazine by securing subscriptions in their organizations and units:

Colonel Mills Miller, 244th C.A., N.Y.N.G.  
 Major Donald L. Dutton, C.A.C., R.O.T.C., Univ. of Delaware  
 Major Albert D. Chipman, C.A.C., R.O.T.C., Washington University  
 Capt. Milton G. Mauer, 250th C.A., Calif. N.G.  
 Capt. William C. McFadden, 7th C.A., Ft. Hancock, N. J.  
 Capt. Ralph W. Russell, C.A.C., R.O.T.C., Univ. of Alabama  
 1st Lt. Gaspare F. Blunda, C.A.C., U.S.M.A.  
 Capt. A. C. Spalding, C.A.C., U.S.M.A.  
 Major Kenneth Rowntree, C.A.C., Instructor, Ore. N.G.  
 Capt. Robert E. DeMerritt, 62d C.A. (AA)  
 Capt. James L. Hogan, 62d C.A. (AA).

We hope that an increasing number of officers will express interest in obtaining subscriptions so that the needed increase in circulation will be attained shortly. All members of the Association, all organizations, Regular Army, National Guard, and Organized Reserve should subscribe voluntarily. We again emphasize the fact that subscribing to *The Journal* is purely a personal and voluntary matter and under no condition should any subscriptions be secured in a coercive manner.

\* \* \*

### Coast Artillery Association Reserve Officer Trophy

A SABER, donated by the Coast Artillery Association to the Coast Artillery Reserve Officer completing the greatest number of hours of Extension School work, has been awarded to 1st Lieutenant Eugene M. Graham, 6th Coast Artillery, of San Francisco, California. Leading the entire field of Coast Artillery Officers in the United States by 300 hours, this officer completed 744 hours of credit.

We asked Lieutenant Graham for a biographical sketch and he modestly responded as follows:

"Born in Clarksburg, Ohio, thirty-five years ago, my ambition to go to West Point was thwarted by parental authority who sent me to Ohio State University to become a doctor. But the Oath of Hippocrates was never taken. However, while at the University I had a year R.O.T.C. and followed this up with the first C.M.T.C. at Camp (now Fort) Lewis in 1921.

"Nine years later at Los Angeles, I became interested in Coast Artillery work and studied the 10-series. This resulted in a commission as a 2d Lieutenant, C.A.-Res., at thirty—a rather late start for a Napoleon. Assigned for three years to the 63d Coast Artillery, Fort MacArthur, California, I was transferred to the 6th Coast Artillery when my residence changed to San Francisco.

"Two fourteen-day tours of active duty, 1933 and 1935, increased my interest in things military.

"An accountant by profession, I have found the



1st Lt. Eugene M. Graham, C.A.-Res., 6th C.A.

Coast Artillery—to my mind an engineer's outfit—an interesting avocation."

Colonel H. E. Cloke, the Commander of the 6th Coast Artillery is authority for the statement that Lieutenant Graham excelled not only in number of hours completed but in the quality of his work—practically all solutions being marked excellent. Also, that this officer accumulated 150 hours of inactive duty credit from troop schools and duty with his regiment.

We believe Lieutenant Graham's an all-time record and congratulate him upon an accomplishment to which others may well aspire.

\* \* \*

### Correction of An Error

ON page 364 of the September-October, 1936, issue of the *COAST ARTILLERY JOURNAL* it was erroneously stated that the personnel of the 974th C.A. (AA) hails from Texas. The personnel of this fine regiment, which is commanded by Lt. Col. John T. Lonsdale, C.A.-Res., actually comes from Colorado-New Mexico-Arizona.

# OPEN FORUM

MAY VIGOROUS THOUGHT BE STIMULATED AND CRYSTALLIZE INTO ACTION

Sir:

I wish to take advantage of your "Vox Populi" offer in the September-October issue of the COAST ARTILLERY JOURNAL and avail myself of this opportunity to clear up some of the questions that have constantly been discussed in my regiment and which are ever present in my mind.

1. Have we made any real progress in the solving of the various antiaircraft fire control problem?
2. Have we, at the present time, a practical solution for either the antiaircraft gun, searchlight or machine-gun fire control problems?

Many officers believe, as I am inclined to believe, that the devices that we have on hand satisfy only target practice requirements.

Very sincerely yours,

CAPTAIN, C.A.C.

EDITOR'S NOTE. The answer to your first question is certainly yes. The answer to your second question is within certain limitations again yes. The problem before us is being attacked with vigor and the limited funds available for development work are being used, with a great deal of foresight, to meet not only the present requirements but those that will arise with future improvements in air corps matériel. It is clearly understood that if we accept devices which satisfy only target practice requirements we will become lazy, our thoughts dulled and progress will not continue. We have lately made progress in improving the methods for antiaircraft machine gun fire control, in simplifying the director for antiaircraft guns and in solving the sound locator and searchlight problems.

Our hope is to carry in future issues of The JOURNAL articles which will support in detail our brief but reassuring answers to your questions.

Sir:

I am a civilian candidate for your proposed "Vox Pop" Column.

I understand that at recent maneuvers a Field Artillery unit, in an action against a mechanized force, emplaced a gun at a curve of a road and the cannoneer only had to pull the lanyard when the head of the column appeared. Good work. But this is a special case, applicable only under exceptional conditions; what then shall constitute the real defense against tanks and other mechanized forces?

The outstanding features of tanks and mechanized forces are speed, invulnerability and adaptability to sur-

prise attack. The small-bore armor-piercing weapons, mines, traps, and other anti-tank weapons developed to date have not stopped the manufacture and use of tanks and mechanized equipment and they are not believed to provide a solution to the problem.

Coast Artillerymen have had experience with targets embodying speed and surprise and their experience should be utilized.

I believe the answer to the tank and the fast mechanized force is the 3" antiaircraft gun modified or built to permit low angle fire.

1ST LT., C.A.-Res.

EDITOR'S NOTE. Antiaircraft guns and machine guns should be capable of being employed as emergency defense weapons against tanks and other mechanized forces.

1 1 1

Sir:

The September-October number of The JOURNAL carried an article with reference to the number of hours work done on extension courses by certain outstanding individuals and regiments. I am in favor of pushing extension course work to a certain degree, but I can see no definite advantage to the service if a man completes three or four hundred hours work in a year.

Why not give credit for other work other than extension courses if they are to the advantage of the man and the service. In my regiment, Reserve officers go on target practice, tactical marches and monthly marches with the regiment and in so doing increase their knowledge and at the same time are of benefit to the regiment. For this they receive credit hours, but no pay. In my own case, I am assistant unit instructor and correct extension course lessons for which I receive credit for actual hours worked. This amounts to from five to thirty hours per month.

No doubt, there are a number of Reserve officers who spend more hours with troops than they do with extension courses, but at the same time, they complete more than their forty hours per year.

I am not crying "sour grapes" because in no year have I received more than four hundred credit hours for all classes of work.

I hope you will give this your attention and if possible, work out some way so that the officers who have earned credit hours other than extension course may receive some credit for their contribution to the good of the service.

PAUL L. PURVINE,  
1st Lieut. (Res.),  
63d C.A. (AA).



# COAST ARTILLERY ACTIVITIES

## Office of Chief of Coast Artillery

*Chief of Coast Artillery*  
MAJOR GENERAL A. H. SUNDERLAND

*Executive*  
COLONEL HENRY T. BURGIN

*Personnel Section*  
MAJOR CLARE H. ARMSTRONG

*Matériel and Finance Section*  
MAJOR C. W. BUNDY  
MAJOR H. B. HOLMES  
MAJOR S. L. MCCROSKEY

*Organization and Training Section*  
LIEUT. COL. C. M. S. SKENE  
MAJOR AARON BRADSHAW, JR.  
MAJOR W. H. WARREN

*Plans and Projects Section*  
LIEUT. COL. JOHN L. HOMER

## Fort Monroe News Letter

BRIGADIER GENERAL JOS. P. TRACY, U. S. Army, *Commanding*

COLONEL HORACE F. SPURGIN  
*Commanding Harbor Defenses of Chesapeake Bay and 2d C.A.*

LIEUTENANT COLONEL EUGENE B. WALKER  
*Commanding 51st C.A.*

LIEUTENANT COLONEL FREDERIC A. PRICE  
*Commanding 52d C.A.*

*By Major O. B. Bucher, C.A.C. and 2d Lieutenant Bernard S. Waterman*

THE departure on December 1, 1936, of Brigadier General and Mrs. Joseph P. Tracy is viewed by their many friends with much regret. General and Mrs. Tracy came to Fort Monroe in 1932, and in their four years here have seen many unusual occurrences, including three hurricanes and a winter rivalling those of the Canadian Rockies. General Tracy was in command during the two hurricanes of 1933, and the lesser one of 1936.

Much progress has been made during General Tracy's incumbency. After the 1933 storms the seawall, a fine piece of engineering, which aided materially in reducing the damage done by the 1936 storm, was erected. The new Central Garage has gone up, to form an important link in one of the finest Motor Transportation maintenance systems in the Army. The problem of traffic control was studied carefully, and Fort Monroe, which has probably the heaviest volume of traffic of any Army post in the country, now has a highly efficient system of traffic control. The Officers' Beach Club, which was destroyed by the 1933 storms, has grown up again in newer and better shape, and we now have a fine clubhouse and a beautiful salt water pool.

General and Mrs. Tracy go from Fort Monroe to San Francisco, where General Tracy will assume command

of the 9th C.A. District. The best wishes of their numerous friends go with them.

General Tracy will be relieved by Brigadier General John W. Gulick, who comes to us from the Philippine Dept. General Gulick is a well known figure in Coast Artillery circles, having served as Chief of Coast Artillery from 1930 to 1934.

With the coming of autumn there has been a large scale resumption of school activities. The Coast Artillery School commenced its school year on September 1,



*Battery F, 52d C.A. wearing tropical helmets.*

with thirty-seven officers in the regular course, and six in the advanced technical course. The special twelve weeks' course for National Guard and Reserve Officers numbers forty-three members.

The Third Corps Area West Point Preparatory School, which had much success last year in preparing enlisted men for the West Point entrance exams, reopened on September 8, 1936, with forty students. These soldiers come from all over the Corps Area. The instructors are Lieuts. C. W. Hildebrandt, J. C. Moore, E. H. Walter, and J. B. Morgan, all of the West Point class of 1935. The academic course is laid out on lines similar to those at the Military Academy. There is much interest in voluntary athletics. A school tennis tournament has just been completed, and a softball league is now in progress. An innovation this year is a series of educational trips to be taken by the students to such points of interest as the Yorktown battlefields, the Newport News shipyard and the N.A.C.A. laboratories at Langley Field. The school is a real asset to the Corps Area as well as to the post. Both instructors and students are putting forth every effort to make the school the finest in the Army, and to excel last year's record of students entering the Military Academy.

On the 12th of September we welcomed into our ranks seven new Coast Artillerymen of the class of 1936 at West Point, 2d Lts. Henry J. Katz, Edgar H. Thompson, Jr., Cecil E. Spann, Warren S. Blair, Robert H. Kessler, Clifford F. Cordes, and Hervey B. Whipple. Of the seven four brought brides with them: Lts. Spann, Cordes, Blair, and Whipple. This is believed to be an all-time record.

Owing to the press of military duties it was decided to consolidate the regimental organization days, and a joint organization day was held on Sept. 28th, with each battery giving a battery dinner, and a general holiday being declared for the troops.

As is usual at Fort Monroe, there are many impending departures. Lt. Colonel Frank S. Clark, 2d C.A., has been ordered to C.C.C. duty at Pittsburgh, Pa., and he and Mrs. Clark left Fort Monroe on Nov. 2, 1936, for their new station. It is with deep regret, indeed, that we watch the departure of Colonel and Mrs. Clark, for they have been among the most popular people on the post, particularly among the junior officers, to whom they have acted as fairy godparents. Their kindly guidance has been an ever present factor in the development, both professionally and socially, of the younger generation.

Among the other departures, recent and impending, are the following: Capt. Allan P. Bruner, on Oct. 20th, to Warrenton, Va., where he will be on C.C.C. duty: Capt. Bruner had just come to Fort Monroe from Columbia, S. C., where he had been on National Guard duty. Major J. T. Campbell, to Amherst, Va., on November 10th, for C.C.C. duty: Major Campbell has recently been on duty with the C.A. Board. Capt. C. C. Carter, aide to General Tracy, to San Francisco about Dec. 1st, where he will continue his duties as the general's aide.

Lts. Robert L. Anderson, Bernard S. Waterman, William H. Baynes, and Norman A. Skinrod, to leave during November, prior to their departure for the Philippine Dept. Lt. Legare K. Tarrant, to the Philippines by way of Europe and the Suez, leaving the first of the year.

On October 19th, Batteries D and F, 52d C.A., commanded by Lt. Colonel Fred A. Price, went to Yorktown, Va., accompanied by the 2d C.A. Band, to participate in the celebration of the 155th anniversary of the battle of Yorktown, and act as escort for the Secretary of War, the Hon. Harry H. Woodring. The units were highly complimented by the Secretary on their fine appearance. Letter from the Secretary of War follows:

October 21, 1936.

My dear General:

I wish to congratulate you on the splendid appearance of the Coast Artillery troops who took part in the recent celebration at Yorktown, Virginia. Please express to the Colonel who commanded these troops my appreciation of the excellent manner in which they carried out their part in the celebration. I might say my outstanding impression of this celebration was the neatness and precision of your troops.

Sincerely yours,

(Signed) HARRY H. WOODRING,  
Secretary of War.

Brig. General Joseph P. Tracy,  
Commanding, Fortress Monroe,  
Virginia.

During the period Sept. 16-27th we had with us Lt. Colonel Louis A. Craig, I.G.D., the Inspector General, Third Corps Area. Col. Craig found our establishment generally in order. He remarked, in particular, on the efficiency of our motor transportation maintenance system.

On Oct. 2d, Major Vaudrey, of the Royal British Artillery, visited Fort Monroe. He was accompanied on a tour of the post by Maj. G. S. Lavin. Maj. Vaudrey is stationed in Bermuda.

On Sept. 17th and 18th we were visited by the worst storm since 1933. Storm warnings were issued by the



Fort Monroe—Waterfront, September 18, 1936.



Fort Monroe—This was once Arsenal Road

Weather Bureau, predicting a hurricane of equal or greater intensity than that of 1933. About 10:00 P.M. on the 17th the wind began to rise, and by morning had reached gale force. With it came a heavy rain. At 10:30 A.M. on the 18th the tide reached its height, and, though there was a foot or more of water on the parade ground at the time the level did not approach that of 1933.

During the night of the 17th families living in the vicinity of Battery DeRussy on the Waterfront, were evacuated to barracks and the homes of friends, and the C.C.C. Camp was evacuated to the Central Garage.

After sweeping over Cape Henry the storm center veered out to sea, and this section avoided the maximum intensity of the storm. Fort Story was hit fairly heavily, and its communications with Fort Monroe, were broken off.

About noon of the 18th the storm abated. The only damage done was of a minor nature. The presence of the new seawall prevented considerable damage on the waterfront.

The football season is now in full swing at Fort Monroe. We are represented by a stronger team in our second year of football. Thus far the team has met three service teams—the Portsmouth Navy Yard Marines, whom we beat 14-7, Fort Totten, whom we defeated very handily, by the score of 27-7, and the 260th C.A.D.C. National Guard, who were bowled over to the tune of 43-0. Other games have been played with the Sewanee Club of Portsmouth, who were defeated 7-6, and the Apprentice School, of the Newport News Shipyard, who handed us

our only defeat in a 19-0 night game played in a pouring rain. The remainder of the season promises to be highly interesting, with much strong opposition scheduled. With the experience gained last year, and the addition of Lieutenant Edwin Thompson, former U. of Del. star athlete, who is a tower of strength behind the line, we have a team which rates among the best of the service teams.

The interbattery sport season is now well under way with the volley ball league nearing completion, the bowling league well under way and basketball, swimming, and the fall cross-country run coming very shortly.

A new system of awards will be used this year for interbattery sports, with individual awards replacing the old system of trophies in each sport, and the battery winning the all-around competition receiving the only trophy. Eleven organizations will compete for the annual trophy this year.

The Annual Athletic Trophy for the sports year 1935-1936 was won by Battery C, 2d Coast Artillery, in a thrilling race which was not decided until the final contest of the season—a baseball game between C Battery and Battery A, 2d Coast Artillery. With Battery D, 52d Coast Artillery, leading in the trophy race by the slimmest of margins, C Battery, in order to win the Annual Trophy, needed the points to be awarded to the winner of the baseball league. At the completion of the scheduled season C Battery and A Battery were tied for the lead. In the playoff C Battery, by winning, annexed both the baseball crown and the Annual Trophy.

In celebration of the winning of the Trophy, C Battery held a trophy dinner in the organization mess. Those present, in addition to the men and officers of the battery, were the unfortunate victims of the C Battery bats—the A Battery baseball team, with their battery commander, Capt. J. D. Moss, Lt. Col. F. S. Clark, commanding the 2d Coast Artillery, Major O. B. Bucher, Post Adjutant, and all officers now stationed on the post, who have previously served with C Battery. Capt. A. M. Wilson, Jr., commanding C Battery, acted as toastmaster, and both Col. Clark and Capt. F. R. Chamberlain, Jr., who commanded C Battery in 1935, made a few congratulatory remarks. The dinner, as well as the athletic season, was a huge success.





# Hawaiian Separate Coast Artillery Brigade

## News Letter

BRIGADE COMMANDER, BRIGADIER GENERAL ROBERT S. ABERNETHY

CHIEF OF STAFF, COLONEL BENJAMIN H. L. WILLIAMS, C.A.C.

S-1, LIEUTENANT COLONEL E. S. DESOBRY, A.G.D.

S-2, MAJOR JOHN T. LEWIS, C.A.C.

S-3, LIEUTENANT COLONEL RALPH E. HAINES, C.A.C.

S-4, LIEUTENANT COLONEL J. P. SMITH, C.A.C.

*Harbor Defenses of Honolulu*  
16th C.A.

COLONEL G. A. WILDRICK, *Commanding*

*Harbor Defenses of Pearl Harbor*  
15th C.A.

COLONEL EARL BISCOE, *Commanding*

*64th Coast Artillery*

COLONEL WILLIS G. PEACE, *Commanding*

*By Lieutenant William M. Vestal, C.A.C.*

ATHLETICS and fall firings have kept things humming for the last two months. A possible Knox Trophy shoot and two practices at high-speed targets have been of special interest. The results of the firings are tabulated below, but we cannot constrain our enthusiasm for the practice of Battery B, 15th C.A., and its Knox Trophy potentialities. Firing two twelve-inch B.C. rifles by Case III in a routine practice, a very special score was attained, 205.3. Data: the B.C., Captain Carl W. Holcomb; number of shots, 10; hits—2, broadside, 5, bow-on; range, 16,000 yards; date, September 10, 1936; and the battery, Closson. With a target being towed at twenty knots, a score of 342.9 would have resulted (optimistically retaining the same accuracy). Just to show that this is no flash in the pan, here are B 15th's past accomplishments: 1932, with A and C of the 15th, won the C.A. Association Trophy for Regimental efficiency in target practice; and in 1933, took second place in Knox Trophy competition with a score of 182.1, firing two twelve-inch D.C. rifles, Battery Selfridge, by Case II, which accents the current score of 205.3 by Case III.

### I. SEACOAST PRACTICES

#### *Harbor Defenses of Pearl Harbor*

Orgn.	Date	Armament	B.C.	Score
C 55	Aug. 6	155-mm	Lt. L. T. Vickers	108.1
A 55	Aug. 20	155-mm	Capt. F. F. Scheiffler	103.4
A 41	Aug. 27	8" RR rifle	Capt. W. A. Weddell	58.0
				92.1 <sup>1</sup>
B 41	Aug. 27	8" RR rifle	Capt. W. H. Dunham	56.2
				72.3 <sup>1</sup>
A 15	Sept. 3	(155-mm ex-)	Capt. P. A. Harris	88.8
A 15	Sept. 8	(Cal. 16" B.C.)	Capt. P. A. Harris	79.3
B 15	Sept. 10	12" B.C.	Capt. C. W. Holcomb	205.3
B 55	Sept. 11	155-mm	Capt. A. K. Chambers	139.2 <sup>2</sup>
C 15	Sept. 24	16" B.C.	Capt. P. A. Jaccard	134.1 <sup>3</sup>

<sup>1</sup>Using P.E. developed in firings, this matériel, 1935-36.

<sup>2</sup>Advanced practice—shifting fire 90° from one high-speed target to another (21 knots), inc. baseline, in 115 seconds.

<sup>3</sup>High-speed target, 21 knots.

### II. ANTI-AIRCRAFT

#### *1. 64th C.A.<sup>2</sup>*

Org.	Date	Armament	B.C.	Score
1st Plat. A	Aug. 12, 19	AA SL	Lieut. E. N. Chace	192.0
2d Plat. A	Aug. 19	AA SL	Lieut. E. N. Chace	190.4

3d Plat. A	Aug. 19	AA SL	Lieut. E. N. Chace	194.0
1st Plat. E	Aug. 12	AA SL	Capt. L. W. Jefferson	183.6
2d Plat. E	Aug. 12	AA SL	Capt. L. W. Jefferson	186.0
3d Plat. E	Aug. 12	AA SL	Capt. L. W. Jefferson	185.2

<sup>1</sup>AA MG scores not reported to date.

#### *2. Harbor Defenses of Honolulu (additional assignment)*

Orgn.	Date	Armament	B.C.	Score
A 16	Aug. 13	3" AA (M1917M1)	Capt. W. G. Holder	103.7
C 16	Aug. 14	3" AA (M1917M1)	Capt. B. E. Cordell	129.99
D 55	Aug. 27	3" AA (M1918M1)	Capt. J. H. Pitzer	55.44
E 55	Aug. 26	3" AA (M1917M1)	Lieut. J. D. Stevens	67.46
F 55	Aug. 26	3" AA (M1917M1)	Capt. F. R. Keeler	99.0
Hq. & CT, 2d				
Bn. 55	Sept. 23	AA SL	Capt. F. B. Dodge	210.4
D 16	Sept. 24	AA SL	Capt. F. F. Miter	199.0
Hq. 16	Oct. 2	AA SL	Lieut. H. A. Gerhardt	210.9

### ATHLETICS

#### *Service Baseball Titles*

The 64th C.A., in second place in the Sector-Navy baseball league behind Subron Four, was the Army's



*Hase Gate, Fort Kamehameha, T.H., with commemorative tablet.*

representative against the 35th Infantry in the Department series, retaining their Department Championship in two straight games, 3 to 1, and 7 to 2. The 64th fell victim to the all-around excellence of the Subrons in the Service series, losing 0 to 4, 4 to 1, and 3 to 6. The Subrons have a record of winning the Sector-Navy league Championship for six consecutive years, and the Service title, eleven straight times.

Following the baseball series, the current swim season, deciding both the swimming championship and the 1936 Sector Athletic Supremacy in favor of Fort Kam, has been the chief item of interest. In tennis, Subron Four eased in with the title by a single match over Luke Field. Out of 60 matches played, the Subrons won 51, Luke Field, 50, H. D. Honolulu, 38, Marines, 25, Staff, 20, Fort Kam, 20, and the 64th C.A., 5. At present, the posts are in the throes of inter-battery boxing and basketball with every prospect for another successful athletic year.

Those who have served in the Brigade realize the great importance of athletics in this command. For those who, we hope, have service here ahead of them, a brief resume of the 1936 athletic supremacy race may be of interest.

With boxing, basketball, track and field, baseball, and swimming furnishing competitive sports to determine their standings, all Coast Artillery posts copped championships, the 64th and Kam being repeaters. After a long and very hectic season, the 64th took the boxing title with a remarkable record of 16 straight wins in the last two smokers of the season to overcome a big lead held by Fort Kam, winning the gonfalon in the next to the last bout of the final smoker.

Already noted in *The JOURNAL*, has been Fort Kam's undefeated basketball season, where Fort Shafter's su-

premacy chances took a severe fall due to an even split for the season. In track and field, the 64th pushed the Sector Champions, H. D. Honolulu, and gained points on Fort Kam for the Supremacy Trophy. Handicapped by spring firings at Waialalo, the younger hopefuls of the 64th's squad did not get in good enough shape to take the track title. Fort Kam, while not having strong team strength, supplied three individual department track champions (as did Honolulu).

The longest season, next to boxing, is turned in by baseball. After an undefeated first round (6 wins), the Fort Kam Colts had a disastrous second round, and only managed to split even in the third and fourth rounds. The 64th, losing two of their first round (6) games, only lost a game per round after that, and came up in second place, two games behind the league leaders, Subrons. Every erratic team in the league, having a good game tucked away in its system, or a ninth-inning home run in its row of bats, took their meeting with the Kamites to play their tricks. H. D. Honolulu, after losing its first four games, staged a comeback, played better than five-hundred ball the rest of the season, and ended up in fourth place right behind the Kam Colts. Fleet Air, Luke Field, and Staff were the other teams in the league.

With these four sports out of the way, the 64th was leading Kam by 18 points, and although turning out a surprisingly strong swimming team, the 1935 Kam swimming champions repeated, winning the 1936 title with 319 points to the 64th's 285 points, in second place. The season closed October 23d. By lieu of this win, the 1935 winners, the 64th, turned the Supremacy Trophy over to Kam with a hearty promise that they would be right in there to bring it back to Shafter in 1937. The supremacy standings: Kam, 4,422; 64th, 4,333; Honolulu, 3,166; Luke Field, 1,767 (app.); and Staff, 1,374 points.

## Corregidor News Letter

BRIGADIER GENERAL JOHN W. GULICK, *Commanding*

COLONEL WILLIAM S. BOWEN, C.A.C., *Executive*

*59th Coast Artillery*

COLONEL PAUL D. BUNKER

*60th Coast Artillery (AA)*

COLONEL ALLEN KIMBERLY

*91st Coast Artillery (PS)*

LIEUTENANT COLONEL CLAIR W. BAIRD

*92d Coast Artillery (PS)*

LIEUTENANT COLONEL REINOLD MELBERG

*By Lieutenant Colonel Oscar C. Warner, C.A.C.*

### THE NEW ARENA

**A** NEW athletic arena admirably suited to tropical weather conditions has recently been completed at Fort Mills and was opened on October 22d. Permission to build the arena was obtained with the stipulation that it would be constructed without cost to the Government. Limited funds were available from the Corregidor Ciné. It was necessary that the strictest economy be exercised during the erection of the building and the results obtained were made possible only through the coöperation of all organizations and agencies. The building was completed at a cost of less than \$5,000.00.

The arena will seat over 1,000. It is open at the sides but overhanging eaves afford protection from the sun and rain. It is certainly a very useful addition to the athletic facilities of the Post and has already stimulated an increased interest in organizational athletics. A full-sized basketball court is contained in the building and this can readily be converted to use for tennis, volley ball or boxing.

### ARRIVALS AND DEPARTURES

Due to arrive October 30th—Brigadier General Bishop, Lieut. Colonels Terry, Cunningham, and Hood, Captains Kleinman, Merkle, E. G. Martin, Lieuts. Pohl.

Woodbury, McKee, Donnelly (ADC), Hill, Routh, Reybold, Hardy.

Sailed September 8th on Navy transport—Captains Schmidt and Neprud. Sailed November 6th—General Gulick, Colonel W. S. Bowen, Lieut. Colonels Baird, Thomas-Stahle, Majors Slicer, Maris, Captains Bell, Lamson, Stone, Lieuts. Ostenburg, Fuller, Hampton, Massello, McMorro, Taylor, Ratcliffe.

Now on leave in China—Major Maris, Captains Bell, Stone, Lieuts. Hampton, Massello, Taylor, Ratcliffe.

#### ATHLETICS

The past two months have seen much activity in the bowling alleys. Both the Officers' and Ladies' Leagues were completed with a Staff Team composed of Pitz, Baldwin, Hesketh, MacLaughlin, Lane, and Fuller, capturing the title of the Officers' League. In the Ladies' League the Staff and NCO teams were tied for first place. Lieutenant Lane lead the officers with a high average of 179.7 closely followed by Lt. Beazley with 175.0. Capt. Morrow had high single with 255 while Lt. Ratcliffe had high triple with 626. In the Ladies' League, Mrs. F. E. Wilson for the NCO's had the honors with a high average of 138.0 and also a high triple of 498. Mrs. D. B. Johnson had high single of 199.

#### 59TH COAST ARTILLERY

*By Major E. R. Barrows, Adjutant*

The primary training objective for the last two months period has been the qualification of one hundred per cent gunners. While we did not quite reach the objective, all units made a commendable showing. All projectiles at Batteries Smith, have been reconditioned, using the "Hindle scraper" with some local modifications. Shot galleries have been provided. Interesting and instructive training was conducted with automatic rifles and machine guns firing over rough terrain and at moving water targets, at unknown ranges.

The 59th having cleaned up the department in baseball and basketball, dropped to second place in the bowling tournament. After a discouraging start in the ten-pin competition of the Department Bowling Congress for 1936, the 59th pin toppers came back to take second place in the duck-pin competition which the 57th Infantry finally won by the narrow margin of seventeen pins for six games. The 57th Infantry overcame the lead of the 59th in the last three frames of their sixth game with a series of marks which was just enough to take first place, 3,274 to 3,257.

The regiment did, however, have the Departmental All-Events champions for both ten-pins and duck-pins. Lieutenant Beazley placing first in ten-pins and Corporal W. L. Malone, Battery C, placing first in duck-pins. Lieutenant Beazley's ten-pin average was 195.7; Corporal Malone's duck-pin average was 118.4.

The 59th regimental ten-pin team came through strong and wound up as winners in the regimental ten-pin league.



*New arena at Fort Mills, P. I.*

Nine basketball players from the 59th with Lt. Spangler, participated in an exhibition game against the Philippine Basketball Five which did so well in the Olympic games where it was defeated only by the U. S. team. The 59th Officers' Bowling team did not win the post bowling tournament although some high individual scores were made. Right now, the Regimental Department of Strategy and Tactics is trying to figure out how the regiment with twelve available officers can win the Caldwell Cup Match from the Staff with forty-five officers.

Lieutenant Colonel E. W. Turner has reported for duty and he is filling an important place with the regiment and incidentally with the Corregidor Players.

Private First Class Hoffman of the Fort Drum detachment has been notified of his appointment to West Point.

#### 60TH COAST ARTILLERY (AA)

*By Captain W. L. Richardson, Adjutant*

With the slacking off of the rainy season and the completion of gunners' instruction and examinations in mid-September, the 60th Coast Artillery moved to outdoor training. Beach defense and rifle range firings were completed in short order, with excellent results. The extensive program of AA machine-gun firing, whereby practically every Coast Artillery battery on the post will fire machine guns at a towed target, was inaugurated. This involves firing at a sleeve for two hours daily from September 12th to December 22d. The machine-gun batteries of the 60th are preparing to shoot their target practices in mid-November. Captain Bender will at the same time move to Fort Stotsenberg with the searchlight battery to engage in target practice. The gun batteries expect to engage in some preliminary firing this fall, but their big effort is not scheduled until February.

Colonel and Mrs. Allen Kimberly, Lieutenant Andrews and Lieutenant S. I. Gilman rested and recuperated with a dash about the Orient in September.

In the Department Bowling Tournament, a 60th Coast Artillery team of Rowan and James captured the two-man event for the duck-pins, while Vaughn and Arnesen, their team mates, took this title for the ten-pins. To wind



up the winners. Hamby of the 60th took the medal for high triple in the ten-pins with a total of 648.

### 91ST COAST ARTILLERY (PS)

*By Major L. W. Goepfert, Adjutant*

General Gulick presented trophies and medals to 91st team captains and members of post championship teams in baseball, volley ball, and tennis; to the 91st for winning the dual track meet with the 92d at the San Jose Barrio Fiesta and to the 91st team which won the indoor baseball title during the same fiesta.

In addition to their other duties, the officers of the 91st are engaged in quartering, messing, and supplying forty probationary lieutenants of the Philippine Army, twenty-one of whom are attached to 91st batteries for training, with schools conducted by the officers of the regiment in the afternoons. The remaining nineteen are attached to batteries of the 92d Coast Artillery (PS) and are similarly schooled in the afternoons. The entire forty have been formed into a detachment under the command of 1st Lt. D. B. Johnson, 91st C.A. (PS), and are quartered and messed in 91st barracks.

basketball tournament and will play a series of games against the winning battery team of the 91st Coast Artillery (PS).

### Harbor Defenses of Sandy Hook Notes

COLONEL L. B. MAGRUDER, C.A.C., *Commanding*

*By Lieutenant Colonel E. B. Dennis, C.A.C.*

THE last of the summer training camps ended at Fort Hancock, New Jersey, on August 29, 1936. Fort Hancock has for many years been designated as a place for training many components of the military forces. Camps were conducted this year for the Reserve Officers Training Corps, National Guard, C.M.T.C., 619th Coast Artillery Reserve and several other reserve detachments.

Battery "C" of the 52d Coast Artillery held anti-aircraft machine gun practice on September 28 and 29, 1936. The results appeared to be excellent.

The 52d C.A. celebrated Organization Day on Saturday, September 26. The troops, commanded by Major E. Young, 52d C.A. with 2d Lieut. R. Morris, 52d C.A. acting as Adjutant, were reviewed by Lieutenant Colonel R. S. Dodson, 52d C.A. The review was followed by the reading of the history to the assembled regiment by Lt. Morris. The remainder of the day was devoted to recreational activities.

Improvements at Fort Hancock continue. The first mile of railroad track coming into this post has been moved several feet to the east in order to give sufficient space for widening of the main automobile highway. All officers' quarters have been equipped with the 1936 model four-burner electric ranges which are most efficient and cook in half the time of the ancient models which they replaced.

A hurricane, the first one in many years, visited this reservation on September 18, 1936. The damage caused was quickly repaired. This hurricane brings to mind the fine work that the Coast Guard Stations on the reservation have rendered during the past year. Coast Guard Station No. 97 answered 127 calls for aid involving 433 lives and property valued at \$153,545.00 and Coast Guard Station No. 98 answered 43 calls, involving 32 lives and \$9,690.00 in property.



91st C.A. (PS) AA MG Firing. Note uniform of Philippine Army Officer.

### 92D COAST ARTILLERY (PS)

*By Lieut. S. M. McReynolds, Adjutant*

The 92d Coast Artillery (PS) has been conducting beach defense firing at Kindley Field Beach, both on fixed and towed targets during the past two months. Small arms firings for the calendar year, 1936, have been completed.

Nineteen probationary third lieutenants are undergoing training for 40 days with the regiment before they are commissioned in the Philippine Army.

### ATHLETICS

This regiment participated in the Philippine Department Bowling Tournament which was just completed, and although the teams were not considered strong they obtained 7th place among the 15 teams entered in the tournament. Battery D won the inter-battery ten-pin bowling tournament and Battery C won the inter-battery duck-pin tournament. Battery C also won the inter-

### Fort Barrancas Notes

COLONEL ROBERT ARTHUR, C.A.C., *Commanding*

*By Captain M. A. Hatch, C.A.C.*

FOLLOWING a strenuous summer a ten-day rest period was prescribed for the latter part of September. A shortage of officers and the tremendous amount of work necessary for the upkeep of ancient buildings operated to make this a paper holiday. However, we were

able to squeeze in several all-day fishing trips to the snapper banks on one of the Junior Mine Planters.

On October 2d the fall social season was inaugurated at Gorgas Hall with a reception and dance in honor of the newly-arrived and departing officers and their ladies. Newly-arrived officers include our new Executive, Lieutenant Colonel G. F. Humbert, Captain E. F. Kollmer (QM), Captain M. F. W. Oliver (F.D.), Lieutenant R. D. Glassburn, Lieutenant Harry Julian, Lieutenant G. H. Crawford, and Lieutenant B. J. Yost. By transfer to foreign service we lost Major R. K. Cole (M.C.) and Captain G. A. Tucker. Captain Granger Anderson is on detached service at Key West where he is bridging the gap between the departing and arriving commanders, Majors Rhein and MacMullen respectively. Captain William L. Johnson, who was recently transferred from Barrancas to Key West via Hot Springs General Hospital, hopes to join his new station in the near future.

October 21st was celebrated by the 13th Coast Artillery as Organization Day. An athletic review was followed by a reading of the regimental history and a march to the athletic field where Battery A won a round-robin baseball tournament and a keg of beer. The rest of the day was devoted to recreational activities. A special dance was held at Gorgas Hall in the evening with balloons, beer, noise makers and all the other trimmings generally found at such parties.

On November 1st we revert to our summer-camp routine for a two weeks' encampment of the 540th Coast Artillery (AA) under the command of Major Caldwell Dumas.

Major F. S. Swett is in charge of WPA activities. He is ably assisted by Lieutenants R. D. Glassburn and Harry Julian. Major PWA projects now under way include road building in the Camp Area, rebuilding porches of barracks, repair of the Fort Pickens wharf, repair of railway track on the Fort Barrancas side of the bay, construction of a wharf on the canal at Barrancas Beach, major repairs to officers' and noncommissioned officers' quarters, repairs and rehabilitation of the water tanks. There is also under way quite a complete beautification project and also a project for the construction of two concrete tennis courts and new regulation length bowling alleys.

## Notes from Fort MacArthur

LIEUTENANT COLONEL CLAUDE M. THIELE, C.A.C.,  
*Commanding*

*By 2d Lieutenant Kenneth I. Curtis, C.A.C.,  
and Private Maurice Laskey*

FORT MACARTHUR has been seething with activity during the past fortnight and a two-week trek to Boulder Dam in which the entire regiment will participate is planned in the near future.

Lieut. Col. Claude M. Thiele, our new commanding officer, arrived in the middle of August. Shortly thereafter he inspected the entire command including the 63d C.A., the 3d C.A., and the activities of the Harbor Defenses of Los Angeles.

The various organizations of the 63d C.A. have been especially active. On Friday, September 4, Battery "E" participated in the motor parade in Los Angeles at the opening of the National Air Races. Special floats with caliber .50 machine guns mounted in the rear of federal trucks formed a part of the spectacular procession. During the early part of October, Batteries "B" and "E" made their regular monthly march and encamped for the night at March Field. A combined Air Corps and antiaircraft night problem was solved during this encampment. Battery "A" of the 63d, which has been encamped at March Field for the past month, completed its annual searchlight target practices while there. The 63d C.A. Band and Battery "E" participated in a night parade held on October 9th in commemoration of the bringing of electric power from Boulder Dam to Los Angeles, a distance of more than 500 miles. There were over a million spectators at this parade.

On October 10th and 11th the Band, Batteries "B" and "E," participated in the San Pedro Fiesta. They not only participated in the parade but set up two three-inch guns, three caliber .50 machine guns and three caliber .30 machine guns on Cabrillo Beach at San Pedro. This equipment was displayed to the public and competent instructors were on hand to explain all the details of it.

Recreational and athletic activities are now under way and great interest is being shown in boxing, tennis, and basketball. The basketball league opens officially on December 1.



## NOTES ON ACTIVE DUTY TRAINING

### Target Practice, Battery E, 251st C. A. (AA) California National Guard

*By Captain Vivian Rapp, 251st C.A. (AA)*

THE record machine-gun practice of Battery E was conducted on the afternoon of August 11, 1936, at Ventura, California, and many valuable lessons were learned.

Three thousand two hundred and eighty-four rounds were fired during the record practice and a total of 310 holes were made in the targets. The score obtained was 228.61. Firings were conducted on two crossing and three zero courses. The firing times for the practice were 26, 16.8, 18.2, 17.3, and 18.4 seconds respectively. The average slant range was 960 yards, altitude 288 feet and angular height 336 mils.

Weather conditions were ideal as there was only a slight wind blowing from the north and the sky beyond the target was partly cloudy which made the target prominent and the tracers easy to follow.

On August 10, 1936, on the day preceding the record practice, a preliminary practice consisting of five courses was fired, at approximately the same slant range and speed of target as those of the record practice. Three thousand five hundred and forty-eight rounds were fired in the five courses of the preliminary practice and a total of 180 holes were made in the targets.

Twenty-five enlisted men or 41.6% of the Battery fired at free balloons. All enlisted men of the battery except cooks and K.P.'s fired the 1,000-inch ground target course.

The firings at towed targets were conducted using a combination of sights and individual tracer control.

The sight used was developed by Sergeant L. A. Moss, a member of the battery. It is a rear sight upon which can be set off both vertical and lateral deflections in mils.

Initial deflections were set on the sights by the corporals instead of the gunners, due to the type of back rests used. After the command, "Commence Firing" was given, and the first few tracers were in the air, all adjustments of fire were made by the gunners as a result of observation of the tracer streams, not by using the sights.

Three altimeters, two located at the battery position and one at the end of a 500-yard base line were used as an aid in determining proper leads. The two base end altimeters were used to read azimuths; and the third altimeter was used to read angular heights of the target.

An improvised plotting board was used. On this plotting board the base line was laid out to scale. At each

end of the base line was an arm. The B<sup>1</sup> arm was graduated to read horizontal distances and the B<sup>2</sup> arm to read slant ranges. Around each base end a mil scale for setting azimuth was drawn; also at the B<sup>2</sup> position there was drawn another 1,600 mil scale for use in setting off angular heights to determine slant ranges. Azimuths of the target were read at 10-second intervals and the horizontal range from the battery determined with the B<sup>1</sup> arm every 10 seconds. The angular height of the target was read every 10 seconds and using the known horizontal range and the angular height read the slant range was read directly on the B<sup>2</sup> arm. A special scale was also constructed for varying speeds using a ten-second time interval against a ground plot for that interval. A lead table for various slant ranges and speeds of target was worked out with the leads in mils and also in target lengths. Altitudes for a determined point can also be read directly on the plotting board. Projected horizontal paths of the target were plotted.

This plot of the course on the plotting board described above was a great help in making the target practice analysis.

It has long been the opinion of the writer that the solution of the machine-gun problem is some combination of sights and tracer control. Sights should be used to place the tracer streams on or near the target and then the necessary adjustments of fire should be made by the individual gunner from his observation of the tracer stream.

It also seems advisable to devise some method of elevating and traversing the gun other than by means of the back rest previously used in this battery. One objection to the back rest is that the movement of the body is not smooth and it results in uneven and jerky movements of the gun especially at high angles of fire. Another objection to the back rest is that the gunner is at times forced to work in a cramped position and he is necessarily directly behind the gun where the smoke and flash from firing obscure the tracer stream making observations difficult and faulty.

To overcome these two main objections, a new traversing device was developed consisting of a 1-inch diameter pipe screwed into the shoulder stock connection. The other end of this pipe consisted of a tee through which was run a 3/4-inch diameter pipe. A capstan screw held the 3/4-inch diameter pipe in the desired position.

This permits the gunner to stand about two feet to the right or left of the gun depending upon the direction of flight of the target. Also the traversing of the gun can be done manually with a resulting smoother traverse.

With this device, it became necessary to develop an offset control for operating the machine-gun trigger. This was accomplished by connecting a bent metal channel or groove to the tripod at the rear locking pin, fitting snugly under and around the machine-gun trigger. A tapered wedge was riveted to this channel frame in such a manner that it could move only in a vertical direction. A sliding block was installed in the channel and connected by means of piano wire through a 1/4-inch diameter cable way to a spring trigger attached to the 1-inch diameter pipe near the tee.

By pulling the spring trigger, which had about a six-

pound pull, the sliding block raised the tapered wedge against the machine-gun trigger causing the gun to function as long as pressure was applied. A safety device was developed by Sgts. L. A. Moss and R. C. Lehman for the spring trigger. This consisted of a metal cover of such construction that when it was down it was impossible to work the gun as the trigger was encased in metal.

Further tests of these devices were made on August 12, 1936, by firing at a towed target on five courses flown at approximately the same slant ranges and speeds as during the record practice. Enlisted men, who had never fired at towed targets before conducted these firings. Four thousand, one hundred and eighty-one rounds were fired and a total of 148 holes made in the sleeves.

The devices described above gave excellent results and are worthy of further study and development.

## Organized Reserve Regimental Camps in Southern California

*By Lieutenant Colonel A. J. French, C.A.C.*

THREE unit camps were held at Fort MacArthur during the past summer season for the Coast Artillery Reserves of Southern California. The personnel attending the first camp was from various sections of the Corps Area Service Command. This camp was commanded by Colonel Dinsmore Alter. It began on July 19 and was concluded on August 1. The warlike nature of their training is not considered suitable for publication, so the remainder of this story is concerned with the activities of the two others, which were held simultaneously beginning August 2. Sixteen officers of the 626th Coast Artillery under Lieutenant Colonel Frank R. McReynolds comprised one unit, and twenty-three officers of the 628th Coast Artillery under the command of Colonel Forrest E. Baker composed the other. Colonel McReynolds attended the camp at his own expense. 1st Lieut. Addison E. Wells, the sole representative of the one organized battery of the 625th Coast Artillery, was attached to the 628th for this active duty training period.

All three of the units ordered to active duty this summer are harbor defense regiments and none of them have had active duty since 1932. After four years, with no active duty training and with the added disappointment of not getting the hoped-for active duty the preceding summer due to lack of funds, it was but natural that anticipation and interest in these camps should be especially keen.

The method of training prescribed for each regimental camp was that known locally as unit training, although it might seem that the method actually employed bordered upon what is defined as associate training. Since there need be no hard and fast line of separation between the two, this is not to be wondered at. In our thirst for information as to how active duty is conducted elsewhere, we have heard of many variations from the camp which

consists of merely two weeks of classroom instruction, through that in which reserve officers are assembled into provisional organizations to receive the rudiments of recruit training, on to the ultimate of the associate method in which the assigned officers of a regular regiment clear out entirely, leaving the reserve regimental officers to handle everything from first call to bedtime prayers, from ration savings to target practice, without any outside assistance whatever except when required to save life or to safeguard government property.

Whatever the proper title for the method of training used during these camps, it fell short of either of these extremes, being rather nearer the associate method than the classroom idea. To be specific, a minimum of use



*Officers of the 626th C.A.*

was made of reserve officers acting as enlisted men and a maximum use was made of regular troops for drill, instruction and target practice. The initial artillery period was a sort of general orientation for the officers. During the succeeding periods reserve officers performed their normal wartime duties. One of the infantry drill periods was devoted to saber drill and one to close-order formations, but during the remainder all officers drilled with regular units.

For all training, therefore, to include drill and target practice, the reserve organizations were given the task without unasked assistance. If sub-caliber ammunition was needed for the mortar battery on a particular morning, the proper officer of the six-hundredth regiment saw to it, and this caused no gaps or delays in the prescribed schedule. Necessary coordination, with the regular garrison was secured through the unit instructor but the amount of coordination required was small. Each officer knew his duties and responsibilities and there was very little duplication, contradiction, or misdirection.

We wish to call attention to the fact that the above-described plan did not involve the associate method for instruction in administration and interior economy. These subjects were covered by conferences, demonstrations, and visits of instruction to battery orderly rooms, storerooms, and kitchens. The reserve units took over the property and records of the harbor defense batteries which were used for drill and target practice, and handled their own officers through the appropriate chains of command. Battery commanders made out the efficiency reports on the lieutenants assigned to their batteries and forwarded them through channels.

The camps of the two regiments, though conducted simultaneously, were quite distinct. Both regiments ate in one mess, which was operated satisfactorily for our hungry warriors by the regular army personnel. For training purposes they functioned independently except when they were assembled for a few conferences given by regular army officers. Each regimental commander organized his officers as for one active battalion, thus creating a somewhat superfluous link in the chain of command well known to those who have served with some of our peace-strength regular units. Battalion staffs were skeletonized on this account, but plenty of work seemed

to be found for rather complete regimental staffs. Other officers were assigned to batteries, two in the 628th Coast Artillery, and three in the 626th, which had fewer officers. Don't ask why; this simply proves that the regimental commanders actually commanded their regiments.

Eighty-five per cent of all available time was devoted to artillery training, the remaining fifteen per cent being devoted to physical training, infantry drill, gas defense, administration, and mobilization training. Of the time devoted to artillery, by far the larger amount was used in sub-caliber drill. A minimum number of lectures, conferences, and demonstrations were included. A real attempt was made to utilize the active duty period for such types of instruction and training as cannot be conducted during inactive duty schools. There were ninety hours of scheduled instruction, which included eight evening periods. It looked like a very strenuous program but the schedule was followed and even some additional instruction was added.

Among the highlights of the camp might be mentioned the shooting of Polaris during a visit to Griffith Park planetarium, the instruction being given by its director, Dr. Alter, who was in camp the preceding two weeks as Colonel Alter. His Polaris obligingly moved through three sets of elongations and culminations during the hour of instruction.

Visitors' Day was celebrated on the last Thursday of the period. The Navy furnished a tug for 155-mm firing by the 628th Coast Artillery, but fog prevented any practice. The 626th regiment then conducted a review, following an escort of honor for the ranking guest of the day, Admiral Cluverius, who made a most inspiring address following the evening banquet. The post commander, Lt. Colonel R. Duncan Brown, expressed in words the spirit of cooperation and helpfulness which he had effectively instilled and demonstrated through all ranks during the camp.

Then on the following day the work of camp closed in proper harbor defense style. The Navy extended the use of its tug again, the weather cleared, and the officers of the two batteries of the 628th in succession fired commendable practices, the last two salvos a straddle that rocked the target—the traditional happy ending for Coast Artillery camps.

## Unit Training Camp, 542d C.A. (AA) Fort H. G. Wright, N. Y., July 5 to 18, 1936

*By Major Curtis Pierce Donnell, C.A. Res.*

THE 542d C.A. (AA) held its third unit training camp at Ft. H. G. Wright from July 5 to 18, 1936. This camp was the first training camp that the regiment had conducted by itself. The other two camps, which were held in 1926 and 1932, were conducted jointly with the 543d C.A. (AA). It was a very successful camp and

in the opinion of many of the older officers it was the finest that the 542d has ever participated in. There were 39 officers present for duty. Thirty-two of these officers were officers from the 542d and the remaining seven were attached from other reserve regiments.

Two regular army officers were present to guide us in



our work and play, Major Frank C. Scofield, C.A.C., who was camp commander, and Major R. J. VanBuskirk, C.A.C., unit instructor.

Immediately upon our arrival at Ft. Wright regimental assignments were given each officer, corresponding as closely as possible to their normal mobilization assignments, i.e., the senior reserve officer became the regimental commander; the senior captain in the first battalion, commanded that battalion and the senior captain the second battalion commanded that battalion. Every officer functioned throughout the period of the camp in the position to which he was assigned at the opening of the camp. All officers also had the opportunity to serve on the guns and as members of the range section. The officers of the second battalion were given an opportunity to operate machine guns.

Tactical exercises conducted and prepared by Major VanBuskirk were an outstanding feature. An interesting exercise was the problem of providing gun and machine gun protection for the U. S. Naval submarine base

at New London, Conn. It included a preliminary survey of the area about the naval base which was made on Sunday, July 12. All officers participated in this survey voluntarily.

The exercise was solved in a highly successful manner and a great deal was learned from it. We were especially impressed with the need for more up to date maps and the advantages of thorough ground reconnaissances following careful map reconnaissances. There was a lot of interesting work in this year's camp and we profited from it and there was also a lot of fun. Everyone remembers, with a great deal of pleasure, the official dance given by the regular army officers on Saturday night, July 11. Our return cocktail party was certainly enjoyed.

"Doc" Wheeler and our mascot and Lt. Frank C. Dustin's "duck waddling" review tendered to the first battalion afforded us several good laughs. Major Scofield and Major VanBuskirk certainly did a fine job and most of the credit for the outstanding success of this camp should go to these two good friends and advisers.

## Encampment 265th C. A. (HD) Florida National Guard at Key West and Fort Barrancas, Florida

*By Major P. L. Wall, 265th C.A. (HD)*

THE 265th C.A. (HD), Fla. N.G. (less Battery C) commanded by Lt. Col. M. R. Woodward, successfully completed its field training at Fort Taylor, Key West, Fla., August 30, 1936. Battery C completed its field training at Ft. Barrancas, Fla., on July 18, 1936. It was necessary to send Battery C, a 3-inch antiaircraft gun battery to Ft. Barrancas because antiaircraft facilities are available there.

This regiment has the unique distinction of being the only National Guard unit in the Fourth Corps Area that travelled to its field training areas by motor, rail, and water. The main body of troops moved by the Atlantic Coast Line Railway from Jacksonville to Tampa, where it was joined by Battery D from Pensacola. Battery D had travelled from Pensacola to Tampa by motor convoy. The rest of the journey to Key West was made by boat. Upon arriving at Key West the regiment was met by a group of distinguished citizens and we paraded through the city prior to moving out to our tent camp. Our camp had been erected prior to our arrival by an advance detail of men from each battery. The camp was provided with wooden mess halls and latrines.

Batteries A and B were assigned to 155-mm guns and Batteries D and E to 12-inch mortars. Artillery instruction started at once. Sub-caliber practices were held after several days of drill. The results obtained were excellent.

Service practices were held on August 25 and 26, Batteries A and B manning the 155-mm guns and firing one 30-round practice each. Batteries D and E were assigned to the 12-inch mortars and each fired 12 rounds. The 155-mm guns used case III and fired at a range of ap-

proximately 12,500 yards. The mortars were fired at a range of approximately 7,500 yards.

The scores obtained are tabulated below and range from excellent to unclassified:

Battery A, 155-mm guns .....	83.0
Battery B, 155-mm guns .....	64.4
Battery D, 12-inch mortars .....	34.0
Battery E, 12-inch mortars .....	78.0

Battery A, Capt. P. F. McCall, won the cup for the highest score obtained in the gun-battery practices. Battery E, Capt. Leslie E. Russell, of Key West, Fla., won the trophy for the highest score obtained in the mortar practices. Battery C obtained a score of 134.2 firing 3-inch antiaircraft guns at Ft. Barrancas. They had a fine practice and the score obtained is excellent. Battery B, Capt. E. V. Garcia, won the close-order drill competitive cup and also the cup for camp sanitation. Battery D, a new unit organized in Pensacola in April, is deserving of special mention as they did remarkably well.

Ceremonies were held every day of the camp and the fine showings made during parades, reviews, and formal guard mount brought forth many compliments. The recreational features of the camp and social activities were a real success. The citizens of Key West were most hospitable and extended us a real welcome. The Regimental Band of Miami, commanded by W. O. Caesar La Monaca, is also deserving of special mention. The concerts provided each evening were not only appreciated by the members of the camp but also by the residents of Key West. The regiment was fortunate in having the follow-



ing officers for duty. Lt. Col. Ralph Stevens, Med. Det. Fla. National Guard, Capt. Carl Sholtz, AGD FNG, Major R. F. Spottswood, C.A.-Res., Lt. Frank Couch, Battery C, and Lt. John L. Morrissey, QM-Res.

We are very appreciative of the assistance rendered by the regular Army personnel from Key West Barracks, and especially to its commander, who in addition was our instructor, Major Wade W. Rhein, 13th C.A. Major Rhein had as his assistants, Capt. C. M. Conzelman,

13th C.A., Sgts. Henry Bergfeld, and Ickner, of the 13th C.A.

On Friday, August 28, 1936, we broke camp and sailed aboard the P & O Steamship *Cuba*, for our home station. We arrived in Tampa, Fla., 9:30 o'clock, August 29, 1936. Battery D entrucked immediately for Pensacola, the remainder of the regiment entrained via the Atlantic Coast Line Railway for Jacksonville. This ended the seventh successful camp at Fort Taylor, Key West, Fla.



## COAST ARTILLERY ORDERS

(Covering the Period September 1 to October 31, 1936)

Colonel W. S. Bowen, from the Philippines, to 2d C.A. District, New York.

Colonel W. H. Wilson appointed Brigadier General, October 1.

Lieutenant Colonel E. E. Bennett, from Office Chief of Coast Artillery, Washington, D. C., to Ft. Totten, N. Y., November 1. Previous orders amended.

Lieutenant Colonel K. T. Blood, from 15th, Ft. Kamehameha, to General Staff Corps, with Troops, Hawaii.

Lieutenant Colonel R. D. Brown, from 63d, Ft. MacArthur, to 62d, Ft. Totten. Previous orders revoked.

Lieutenant Colonel R. S. Dodson, from 52d, Ft. Hancock, to the Philippines, sailing New York, January 5.

Lieutenant Colonel H. W. T. Eglin, promoted Colonel, September 1.

Lieutenant Colonel F. M. Green, from office Chief of Coast Artillery, to 2d C.A. District, New York.

Lieutenant Colonel C. E. Hocker, from Separate C.A. Brigade, Ft. DeRussy, to General Staff, Ft. Shafter.

Lieutenant Colonel J. S. Smylie, to Panama, sailing October 30. Previous orders amended.

Lieutenant Colonel Charles Thomas-Stahle, from the Philippines, to Massachusetts Institute of Technology, Cambridge.

Lieutenant Colonel Meade Wildrick, retired, October 31.

Major C. R. Adams, from 10th, Ft. Adams, to Org. Res., Ninth Corps Area, with station at San Francisco, Calif.

Major Aaron Bradshaw, Jr., from 62d, Ft. Totten, to office Chief of Coast Artillery, September 29.

Major F. E. Emery, Jr., promoted Lieutenant Colonel, September 5.

Major R. T. Gibson, promoted Lieutenant Colonel, October 1.

Major C. R. Jones, promoted, Lieutenant Colonel, September 1.

Major W. R. Maris, from the Philippines, to Org. Res., Fifth Corps Area, with station at Columbus, Ohio. Previous orders revoked.

Major S. L. McCroskey, detailed for duty with Org. Res., Third Corps Area, with station at Washington, D. C., in addition to other duties.

Major H. H. Slicer, from the Philippines, to recruiting, Ft. Slocum.

Major J. C. Stephens, from Panama, to 7th, Ft. Hancock.

Major C. H. Tenney, promoted Lieutenant Colonel, September 1.

Major Berthold Vogel, from 11th, Ft. H. G. Wright, to instructor, Massachusetts National Guard, Fall River, October 20.

Captain L. D. Flory, from Sixth Corps Area, Chicago, to Hawaii, sailing New York, December 16.

Captain B. D. Giff, from 52d, Ft. Hancock, to US Army Mine Planter, Joseph Henry, Ft. Hancock.

Captain D. D. Lamson, from the Philippines, to 14th, Ft. Worden.

Captain P. S. Lowe, from 11th, Ft. H. G. Wright, to USA Mine Planter General Absalom Baird, Ft. H. G. Wright.

Captain W. J. McCarthy, from 14th, Ft. Worden, to 11th, Ft. H. G. Wright.

Captain W. L. McCormick, from 6th, Ft. Winfield Scott, to 14th, Ft. Worden.

Captain C. M. Myers, from the Philippines, to 14th, Ft. Worden.

Captain R. B. Pape, to 6th, Ft. Winfield Scott. Previous orders revoked.

Captain C. H. Schabacker, transferred to Quartermaster Corps, September 28.

Captain Lloyd Shepard, from 14th, Ft. Worden, to 51st, Ft. Monroe.

Captain J. F. Simmons, from 2d, Moorman's River, Va., to Hawaii, sailing New York, October 30.

Captain D. C. Tredennick, from New York, to Hawaii, sailing October 30, and then to the Philippines, February 9. Previous orders amended.

Captain C. M. Wolff, from 7th, Ft. Hancock, to USA Mine Planter General Edward O. C. Ord, Ft. Hancock.

Captain W. L. Wright, from Sixth Corps Area, Chicago, to 2d, Ft. Monroe, January 1.

Captain G. E. Young, from 69th, Ft. Crockett, to the Philippines, sailing San Francisco, February 2.

First Lieutenant R. L. Anderson, from 51st, Ft. Monroe, to the Philippines, sailing New York, January 5.

First Lieutenant Edward Bodeau, from 62d, Ft. Totten, to Ordnance Department,

Springfield Armory, September 28.

First Lieutenant A. R. Hartman, from 2d, Ft. Monroe, to General John M. Schofield, Ft. Monroe.

First Lieutenant G. E. Keefer, Jr., from 69th, Ft. Crockett, to the Philippines, sailing San Francisco, February 2.

First Lieutenant E. H. Kibler, from 7th, Ft. Hancock, to Ordnance Department, Picatinny Arsenal, Dover, October 1.

First Lieutenant F. T. Ostberg, from the Philippines, to 11th, Ft. H. G. Wright.

First Lieutenant C. M. Snyder, from the Philippines, to 6th, Ft. Winfield Scott.

First Lieutenant L. K. Tarrant, from 51st, Ft. Monroe, to the Philippines, sailing New York, January 5.

First Lieutenant R. F. Tomlin, to Hawaii, sailing San Francisco, November 24. Previous orders amended.

First Lieutenant H. F. Townsend, from 14th, Ft. Worden, to US Army Mine Planter General J. Franklin Bell, Ft. Worden.

Second Lieutenant Alfred Ashman, from Air Corps Primary Flying School, Randolph Field, to 6th, Ft. Winfield Scott.

Second Lieutenant L. R. Drake, from 69th, Ft. Crockett, to Randolph Field, October 1.

Second Lieutenant H. R. Hale, from student, Air Corps Primary Flying School, Randolph Field, to the Philippines, sailing San Francisco, February 2.

Second Lieutenant L. L. Ingram, from 6th, Ft. Winfield Scott, to the Philippines, sailing San Francisco, February 3.

Second Lieutenant K. E. Madsen, transferred to Corps of Engineers, Ft. Peck, Montana. Previous orders revoked.

Second Lieutenant R. M. Miner, from 6th, Ft. Winfield Scott, to the Philippines, sailing San Francisco, February 2.

Second Lieutenant C. B. Stewart, from 62d, Ft. Totten, to Air Corps Training Center, Randolph Field, October 15.

Second Lieutenant J. W. Totten, from student, Air Corps Advanced Flying School, Kelly Field, to Langley Field, Hampton, October 1.

Second Lieutenant H. P. vanOrmer, from 2d, Ft. Monroe, to Panama, sailing New York, October 30.

# COAST ARTILLERY BOARD NOTES

*Any individual, whether or not he is a member of the service, is invited to submit constructive suggestions relating to problems under study by the Coast Artillery Board, or to present any new problems that properly may be considered by the Board. Communications should be addressed to the President, Coast Artillery Board, Fort Monroe, Virginia.*

## THE COAST ARTILLERY BOARD

COLONEL WILLIAM E. SHEDD, JR., C.A.C., *President*  
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MAJOR GORDON B. WELCH, Ord. Dept.  
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MAJOR EUGENE T. CONWAY, C.A.C.  
CAPTAIN HOBART HEWITT, C.A.C.  
CAPTAIN WALTER J. WOLFE, C.A.C.

## SECTION I

### Projects Completed Since Last Issue of the Journal

PROJECT NO. 1055 — PAINT PRIMERS FOR SEACOAST MATÉRIEL.—The results of the test of the paint primers indicated that red lead provides a more satisfactory priming coat than either of the other two types of paint primers, principally because of the greater tenacity with which the red lead adheres to metal surfaces when struck a light blow with a sharp instrument. The Board recommended that the use of red lead as a priming coat for seacoast matériel be continued.

PROJECT NO. 1056 — SOUND-POWERED TELEPHONES.—The results of the tests of this matériel show that the handset is satisfactory for service use but that the head and chest set is unsatisfactory. The receivers and transmitter of the latter unit are not only so bulky that they interfere with the telephone operator in any other work he may be doing, but they are also prone to get out of adjustment and become defective. Concerning the subject as a whole, the opinion is that the present sound powered telephone is not as generally satisfactory as the battery powered telephone because the greater ranges of practicable communication of the latter provide a greater margin of dependability; but on the other hand, sound powered telephones give promise of satisfactory use in field telephone communication in all situations where long lines are not required. To determine more definitely the extent to which this equipment may be used in the field, it has been recommended that some twenty-four sound powered telephone units, each to consist of a handset and ringing assembly, be issued to two mobile artillery regiments for a six-month service test. In regard to the possible use of the sound powered telephone in place of, or to supplement, the common battery system in fire control communication, it has been recommended that further consideration of this phase of the subject be held in abeyance pending the development of a satisfactory head and chest set.

PROJECT NO. 1063 — RADIO SET SCR-194-T<sub>3</sub>.—The test of the ultra short wave radio set SCR-194-T<sub>3</sub> has been completed. The Board found that although the set under test had but limited use for Coast Artillery purposes, it can provide a needed means of communication pending the development of a more suitable radio set. The Board recommended that a portable radio set which would meet the requirements of the Coast Artillery be developed but that in the meantime the radio set SCR-194-T<sub>3</sub> be issued to mobile Coast Artillery regiments and to mine commands. The number of sets recommended for issue to organizations was deemed sufficient to provide a pool to be available for use as regimental commanders may direct.

PROJECT NO. 1066 — SLIP RINGS FOR ANTI-AIRCRAFT GUN MOUNTS.—Tests of anti-aircraft gun mount, M2A1, No. 49, the first to be equipped with an electrical slip ring device as described in the July-August issue of the JOURNAL, comprised a considerable amount of drill, the firing of 171 rounds, and a road march of 49 miles. In all drills and firings, the mount was traversed through 360 degrees between courses. At the close of each period of drill or firing, the spindle containing the slip rings was thoroughly drenched with a hose. The road march was conducted over roads involving as much mud, dust and rough going as could be found near Fort Monroe. No failures of any kind were found that could be attributed to the slip ring device. The Board therefore considered that this device functioned as intended and that it was serviceable and adequate for field service. However, it adds to the possibilities of electrical failure and further complicates the war procurement problem. To secure the advantages of freedom of traverse and to minimize the disadvantages of increased complication and added possibility of electrical failures, the Board recommended a slight change in the installation whereby it will be possible to continue firing even though the slip ring device should be inoperative or not installed. Thus modified, standardization was recommended.

**PROJECT No. 1068—MOTOR TRICYCLE.**—This vehicle proved to have somewhat less pick-up and maneuverability than a motorcycle, either with or without side-car. The motor tricycle, nevertheless, was found to be better than a motorcycle with side-car for most purposes. The motor tricycle can carry two passengers or it can carry a load of several hundred pounds through difficult cross-country paths or even where there are no paths. Also, the motor tricycle can travel at slow speeds under its own power or it can be towed conveniently in convoy. The vehicle under test was an experimental type; the Coast Artillery Board recommended that a motor tricycle, improved in certain respects, be procured for an extended service test.

**PROJECT No. 1078—DISPATCH CASE.**—This project was concerned with an experimental officer's dispatch case which was submitted for comparison with the present standard officer's leather dispatch case and the noncommissioned officer's canvas dispatch case. The experimental case is approximately the same size as the musette bag, and is divided into four compartments. The contents of the case consist of: two map holders, with front and back made of thin celluloid ruled with grid lines one inch on a side; a notebook, letter size, with forms used by different staff officers; map measure, scales and pencils. The Board believed the experimental case superior to the other cases and recommended that six cases be issued to an antiaircraft regiment for a service test.

## SECTION II

### Projects Under Consideration

**PROJECT No. 953 — RADIO-CONTROLLED HIGH-SPEED TARGET.**—The target has been provided with a mast carrying three red flags and subjected to two preliminary visibility tests. Thus equipped the target is readily identifiable. The height of the mast is sufficient to permit tracking at ranges of about 17,000 yards, on clear days. When the target is in the vicinity of the ship carrying the radio control (mine planter) it can be picked up easily, but when it is some distance away from the mine planter, observers find it difficult to make a quick pick-up, particularly at a range greater than 10,000 yards, owing to the small size of the flags. The maximum distance from the control vessel, at which the target can be observed, appears to be about 5,000 to 7,000 yards. Beyond these distances it is not possible to be sure that the target is on a proper course. These tests are to be continued.

**PROJECT No. 1065—FLASHLESS POWDER FOR ANTI-AIRCRAFT GUNS.**—Firings to compare two experimental lots of flashless non-hygroscopic powder and a third lot of standard powder have been completed. While no definite conclusions can be drawn until the numerous photographs of the firings have been finished, it is evident that although the experimental powders have a very small flash, the smoke developed by these powders may, at times, be a considerable handicap to observers at the battery position. In other words, the advantage of flash re-

duction are obtained at some sacrifice of the smokeless feature.

**PROJECT No. 1069—HELMETS (STRAW AND FABRIC).**—The Fort Monroe troops changed to the wool uniform on October 13th and this ended the practical test of the helmets. Comments by the wearers of these helmets continue to be favorable in so far as comfort is concerned. At the close of the summer season, the question of durability had begun to arise. An estimate of the advantages of the helmet indicates that comfort and good appearance will have to be weighed against what seems to be the greater durability of the campaign hat.

**PROJECT No. 1075—CABLE INSTALLATION FOR FIXED ANTI-AIRCRAFT GUNS.**—Matériel has been received at Fort Monroe for making a permanent cable installation for one battery of 3-inch fixed antiaircraft guns, M1917. This installation will involve slip rings on each carriage similar to those reported on in Project No. 1066, buried armored cable running from each gun to a main junction box and thence to permanent receptacles near one or more prepared director positions, and the necessary manholes, boxes, and fittings. When this installation has been completed it will be possible to take the director and height finder to any one of the prepared positions, plug into the permanent receptacles in a near-by manhole, and proceed to operation without the necessity of laying and connecting up a network of loose pieces of cable. The Coast Artillery Board has been directed to observe the installation and operation of this system and to submit a report as to the desirability and practicability of installing it on all fixed antiaircraft batteries.

**PROJECT No. 1077—BELTS, WAIST, WEB, ENLISTED MEN'S.**—This project, submitted by the Quartermaster General, is concerned with the desirability of changing the width of the present issue belt from one inch to one and one-quarter or one and one-half inches and of adopting a different type of buckle intended to eliminate bulging of the felt fabric. The underlying purposes are to provide a belt that will give longer wear, be more comfortable to the wearer and neater in appearance.

**PROJECT No. 1080—VARIABLE FUNCTION CONVERTER.**—This instrument was conceived by Major J. T. Campbell, Coast Artillery Corps, and designed and built by the Eastman Kodak Company. It is based on a number system involving powers of the number two. In this system, it is possible to represent any number by a combination of colored squares on a photographic film. Any series of numbers, logarithms of sines, for example, can be represented on a reel of motion picture film. Two reels of such films are used to form a unit. One is moved in proportion to degrees and hundredths, the other in proportion to the log sines of these angles, one of the films being superimposed on the other. When the two have been properly superimposed, a light projected through the two will show a colorless frame. When they are not properly matched, one color or another will show depending upon which way the log sine film has to be

turned to secure a match. When properly matched, the log sine is indicated on a Veeder counter to an accuracy of one unit in the fourth decimal place. The Coast Artillery Board is engaged in studying the possible applications of such a device. Naturally, a set of these converters could be combined to solve simple triangulations involving the law of the sines. Another application is to use the film for giving the range-elevation relation for particular guns and ammunition. No conclusion has yet been reached as to just what uses will be recommended to exploit the possibilities inherent in this instrument.

PROJECT NO. 1083—ELBOW TELESCOPES, T9 AND T10.—In view of the numerous recommendations, received from the service, that all tracking telescopes for antiaircraft gun batteries should have optical characteristics equivalent to those of the night glasses furnished with searchlight comparators, the Chief of Ordnance has furnished the Elbow Telescopes, T-9 and T-10, for test in comparison with the present standard Elbow Telescope, M-2. These new glasses are to be mounted on the Director T8E3 at Fort Monroe. Both are night glasses, one being six-power and the other eight-power, while the M2 elbow telescope is an eight-power "day" glass and not designed especially for night observation.

### SECTION III

#### Miscellaneous

WEAR OF MACHINE-GUN BARRELS.—In the 213th Coast Artillery, Pennsylvania National Guard, a careful check of the wear of the caliber .30 antiaircraft machine-

gun barrels used during this season's target practice was made. A study of these reports indicates that there is a fairly consistent relationship between the number of rounds fired and the diameter of the bore obtained with a breech bore gauge. As a result of this study the Coast Artillery Board has recommended that a breech bore gauge of suitable caliber be issued to each antiaircraft machine-gun platoon in order to permit the platoon commander to make a determination of the accuracy of the shooting to be expected from the barrels in use, and to determine just when the barrels should be changed.

HEIGHT OF GUN CORRECTION FOR MOBILE SEACOAST ARTILLERY.—The Coast Artillery Board has been engaged in studying the limitations of the existing system of charts and tapes for the range correction board and the percentage corrector. It was found that, under certain adverse combinations of conditions, mobile artillery on a high site cannot develop its full effectiveness with existing apparatus. Certain other disadvantages are also inherent in the present system. However, the system is flexible, accurate when properly used, and is readily procurable under almost any conditions. It can even be improvised if necessary. The limitations for mobile artillery can be overcome by relatively simple expedients. Nevertheless, improvement in design should be sought looking to increased accuracy and to minimizing the requirements for manual and mental dexterity on the part of the operators. The Board recommended thorough consideration of such redesign in connection with tests of the gun data computer, T5, which will probably take place early in 1937.

# Why Coast Artillery Trophies Come to California

BY LIEUTENANT COLONEL F. H. HOLDEN, 975TH C.A. (AA)

NATIVE sons of California are always willing to tell about the glories of their State so the request in the recent COAST ARTILLERY JOURNAL for an explanation as to the number of trophies coming to California will doubtless produce many explanations which will differ widely. This interpretation of the facts is an expression of personal opinion and deals primarily with the activities of the Coast Artillery Reserves in *Southern California* as I have seen them.

The leadership of Coast Artillery Reserves has not always rested in this state, therefore if we find the time and the cause of the change we will discover the reason for our present trophy winners. Ardent supporters can not attribute our present standing to the advantages of a convenient supply of California, sun-ripened prunes nor to the vitamins "C.A." found in California's sun-kissed oranges. Our unmatched climate might be another ar-

gument. But prunes, vitamins, and sunshine, as well as the exposure of our long western coastline, we have had with us all the days of the existence of the Coast Artillery Reserves, and they affect equally the blessed of our own branch of the service and the unblessed.

Seven and one-half years ago the Southern California area of the Ninth Coast Artillery District contained less than eighty-five Reserve Officers, of whom less than fifty could be classed as active. Then, as now, we had able and enthusiastic Regular Army Executives who endeavored to encourage us in our active and inactive training. Troop schools were held with only a few attending, organizations were not complete, and a regimental assignment consisted of little more than a group of officers assigned to what was, in name only, a regiment. Regulations in regard to maintenance of reserve commissions and promotion were far from the present standards established

by the War Department, and work was carried on sporadically. We had the further handicap that practically no means of obtaining new Reserve Officers was available either from the R.O.T.C. or C.M.T.C.

Since 1929 there has been a change which is only incidentally shown by California units and individuals winning trophies. The real change has come by the building of units which have a place for those officers enthusiastically loyal to their regiments, who are inspired by the ideal of fitting themselves for active duty training. I believe that this is the attitude of other regimental commanders as it is the policy in the 975th C.A. (AA), which I command. The officers of my regiment must be capable of instructing and commanding a full regiment in case of an emergency whether trophies are won or not.

It was love of the military, a patriotic enthusiasm, and the loyal support of other officers striving towards the same goal that enabled Lieutenant Harold I. Strahn of my regiment to win the Coast Artillery National Trophy twice during his first four years of service in the Reserves. During the school year just passed Lieutenant Strahn and two other officers in my regiment completed 330 hours of extension work, more than was done by the high men in five of the nine Corps Areas. Officers in other regiments of California exceeded this so that in the Corps Area it is probable that these three officers would only fall within the top ten or the top twenty. The records are not available to me. From such a background it is only natural that trophy winning individuals and regiments appear.

Having established the fact that seven and one-half years ago we were average or less, and that today we feel ourselves above the average, we come to the question as to how and when did the change take place?

During the late spring of 1929 Colonel E. A. Evans, now commanding the 977th C.A. (AA), suggested to our Executive, Colonel Frank S. Long, that he believed it would be possible to get together a class of young graduate engineers who would be interested in obtaining commissions as second lieutenants in the Coast Artillery Reserves. He also suggested that there were undoubtedly World War officers, either out of the Reserves or entirely inactive, who could be interested in a class for broader instruction to fit them for examination for commissions as first lieutenants or captains in our branch of the service. The idea was discussed at some length and was approved by Colonel Long. I volunteered to assist Colonel Evans in the instruction if more candidates were found than could be instructed conveniently in one class. Our expectation was to find from ten to fifteen young men who might wish to qualify themselves for such com-

missions. Circulars were sent to the engineering departments of various industrial organizations and the first class opened with an enrollment of seventy-seven. Eighteen months later 174 officers had been added to the Coast Artillery Reserves of Southern California and today there are approximately 400 Coast Artillery Reserve Officers in this area. Until September of this year there was no Coast Artillery R.O.T.C. unit in Southern California and our additions have been almost exclusively from the candidate classes started seven years ago. This does not mean that 300 and some officers have been commissioned as a result of these schools. There have been numerous transfers from the Southern California area to other parts of California and of the United States. While conscientious efforts have been made to conserve every Reserve Officer for the Service, every assistance has been given to those officers who failed to display interest or who, for good reason, desired to resign. We know that we can keep our regiments full of officers who will work, and are pleased to get a deadhead off the brake beams.

In the formation of the 975th, 976th, and 977th Coast Artillery (AA) in 1929, officers were told that they would be expected to work, that attendance at troop schools was expected in uniform, that field exercises would be held, and that no officers were wanted who were not proud of being a part of the Army of the United States. It is true that our regiments are not widely scattered, and that troop schools are possible. The only reason that we are so situated is that the idea given us by Colonel Evans has enabled us to build regiments where batteries previously existed. As an example let me cite the activities of Lieutenant Beyers who lived 25 miles from Los Angeles in the city of Long Beach. He was a graduate of our first candidate school and soon thereafter started another candidate school in Long Beach with the assistance of a few Coast Artillery officers located there. Within four years this had grown to be a battalion of my regiment. This example of Lieutenant Beyers illustrates two other points. He is no longer with the regiment but is carrying on his good work in the California National Guard. It also points to the effect which our Los Angeles activity has had elsewhere.

My personal opinion is that the turning point occurred seven and a half years ago and was brought about by the idea which Colonel Evans put into concrete form, supplemented by his continuous hard work and example throughout all of the years that have followed. He has not been striving for trophies, he has been building a regiment capable of serving in an emergency.

The winning of trophies has been an incidental but natural result of individuals and organizations following this policy.



# THE FOREIGN MILITARY PRESS

## GREAT BRITAIN

*Reviewed by Captain Joseph I. Greene, Infantry*

EDITORIALS. By Captain J. R. Kennedy, M.C., R.A. (retired). (*Army, Navy and Air Force Gazette*, July 30 to September 24, 1936.)

The nine issues of the *Gazette* under review contain perhaps fourscore editorials by the outspoken Captain J. R. Kennedy. At least one-third of them would make good reading for INFANTRY JOURNAL subscribers. Pertinent excerpts follow.

"For years now gas has been officially looked upon with horror—just as every new weapon has been from the cross-bow, which was anathematised by the Church as well as by the Generals, to the tank, which promises some cover to the wretched in-fighter, but is anathematised by the war-ignorant politician and suppressed by the Generals. . . . The attitude (on gas) has been to shut our eyes to the possibilities until we had created agreements through which we need not see them, in spite of the demonstrated uselessness of such agreements in the past. . . .

" . . . there is little doubt that well-nigh pure concentrations of gas in the streets of towns may be possible. The way to prepare for them is certainly not to minimise their importance, either in the official or the unofficial mind."

"The Italian campaign in Abyssinia has clearly shown the suitability of armored fighting vehicles in mountainous country and the uselessness of cavalry. . . ."

" . . . The mere physical problems (of a proposed combined maneuver) are as nothing compared with those of command, and anything learned in a pointless exercise would also be learned in a useful one."

" . . . There seems to be no reason why women should not undertake such service (piloting supply airplanes) if they are so inclined, and their services would be extremely valuable. . . ."

" . . . These politicians, in office but a few months, dash about from one country to another, producing these futile scraps of paper ("amateur treaties"), and wasting the precious hours. Were they to behave like this in business or in war, the results would be disastrous. . . ."

" . . . We have been accustomed to think in terms of only a few airplanes, and we have approached all our problems with this in view. But it is continuous attack by swarms of aircraft which we really ought to have in

mind. The nation which first realizes this and puts it into practice, if a system of collective security has not already been arranged, will shake the whole world. . . ."

" . . . We can assume that there will be no question of a war between America and the British Empire under any conditions that can at present be foreseen and we can probably hope for a benevolent attitude, if not for active support, in any cause in which we are now likely to embark our armed forces."

" . . . There will be about 2,500 front-line aircraft for home and abroad (when certain new British increases are effected). Large as these figures may seem, they fade into insignificance compared with the Royal Air Force strength at the end of the War, when there were nearly 30,000 pilots out of a total strength of 290,000, and . . . 22,000 aircraft and 37,000 engines. . . . If this colossal strength was necessary in 1918, having developed from nothing at all, we should clearly now be aiming at greater, not less, proportions. . . ."

Part of a quotation from the *London Daily Mail*:  
" . . . These mediaevalists still cling to their 22 regiments of cavalry, armed with lance and sabre, and their long columns of horse and mule transport that a few gas bombs would reduce to carrion. They even spend \$100,000 a year on an Equitation School . . . , where officers, in order to train themselves for modern war, hunt foxes three days a week on Government horses, and are taught fancy jumping for International Horse Shows."

" . . . The Army is not going to achieve the mobility which it requires, by carrying infantry along roads in busses any more than it is going to do so by motorizing the existing organization . . . it would seem peculiar that 22 years after we carried out the wholesale transport of troops by motor bus in actual war, we should be devoting a special maneuver in peace to the rediscovery of such possibilities. . . ."

" . . . War has shown relentlessly in the past that mass, unless it is efficient, is not a strength but a weakness. . . ."

These quotations should be enough to show how Captain Kennedy thinks and writes. They show, too, why more than one member of our own army has become a regular reader of the *Army, Navy, and Air Force Gazette*.



## FRANCE

*Reviewed by Captain Wendell G. Johnson, Infantry*

# INFANTRY AND THE PROBLEM OF VILLAGES. By Lieutenant Colonel Desré. (*La Revue d'Infanterie*, August, 1936.)

Towns and villages have their military history. Even without going beyond the World War many come to mind that were heroically attacked or defended.

In the study that Colonel Desré makes of the defense of villages, he considers only small settlements of sufficient tactical importance to be strongly defended.

French infantry regulations prescribe: "Even if they do not offer enough advantage in extended visibility, good flanks, and solid shelter, they (villages) are always a cover and mask for the occupants, and for the enemy they are an obstacle capable of breaking the cohesion of his attack. Therefore there is advantage in occupying villages but the personnel used must be limited to the absolute minimum."

It is usually best to place the main line of resistance right along the edge of a village at the beginning of a defensive mission, and, if the situation becomes stabilized, to carry this line some distance in front of the edge of the village, but only after necessary works have been prepared—principally antitank mines to parry armored attacks. The reasons for using the edge of the village at first are that protection is thus afforded against mechanized attacks; frontal and flanking fields of fire are obtained; and hostile artillery, at first, will not be massed in sufficient quantity to register heavily on the village.

A village is defended by guarding the edges, the interior, and the exits. The edges are defended primarily by barricades at all exits and entrances. Cement-block barriers with iron reinforcements will effectively stop tanks. These must be supplemented by antitank guns and mines. For defense against attacking infantry there must be a barrier of machine-gun fire and also of mortar fire for close defense.

For the defense of the forward edge of the village light machine guns and rifle and hand grenades are most useful. For defense of the lateral edges, heavy machine guns are essential. They are emplaced in rear of the village to cover its flanks.

The men constituting the force providing the fixed defense should be distributed in groups no smaller than the section (or squad in case of machine guns) and stationed at various important points. In addition there should be several mobile groups, such as platoons, conveniently located to counter-attack if the enemy begins to penetrate into the village.

The interior defense of a village is organized largely by stationing small groups in various buildings of solid construction (in the manner of redoubts) from which fire can be placed on all the street openings from the out-

side to the inside of the village. Oftentimes these redoubts are the salvation of the village.

The defense of the openings to the village is insured largely by reserve elements and means of fire placed behind the village from where they can cover counter-attacks and even make counter-attacks. Usually this distance should be between 200 and 600 yards where small villages are concerned.

The commander of the defense will usually be able to conduct the defense most effectively if he makes his headquarters in the central "redoubt."

The author concludes his study of the defense of a village by discussing the aid given by supporting arms and then illustrates his study with three examples, two of which are historical.

## WILL THE MECHANIZED WEAPON BECOME THE QUEEN OF BATTLES? (*L'Illustration*, March 28, 1936.)

The anonymous author epitomizes the opinions of several powers on the tactical employment of mechanized arms:

The Italians consider the tank essentially an auxiliary or support weapon. They do not seem to contemplate its use in mass.

The English hold that the armored fighting vehicle is a primary weapon with great possibilities for independent action.

The Germans view the tank as the arm of the offensive and foresee its use in heavy masses destined to strike a decisive blow. They also intend to use it in coöperation with other arms.

The Russians seem to think of the tank as the Poo-Bah of weapons, they would use it both independently and in coöperation with other arms; in fact in almost all situations.

The French visualize the tank and combat car both, as the support weapons and as a mobile mass of fire power, useful during concentration and maneuver.

The English envisage the constitution of mobile maneuverable divisions, composed of tanks of little weight. The Germans, on the contrary, look upon the tank division as a large unit of well-protected heavy vehicles.

Italians, French, and Russians expect to use a battalion of tanks to support a division, but they are also experimenting with light motorized divisions.

The anonymous author wonders if it would not be advisable to create a sixth arm: the mechanized arm.

He also draws attention to the tank-dangers engendered by the increasing development of antitank weapons, and to the grave problems of supply that an intensive use of these machines would bring about in case of war. As an example he points out that during the maneuvers in Champagne (1935) two motorized infantry divisions and a light motorized division consumed 31,700 gallons of gasoline in less than two days.

## BOOK REVIEWS

WAR IN THE PACIFIC. By Sutherland Denlinger and Charles B. Gary. Robert M. McBride & Co., New York. 338 pages. \$3.00.

*Reviewed by Major Gordon B. Welch*

The two nouns in this title, war, and the Pacific, are ominous when thus placed together. Nobody knows with certainty just what the word, war, means in the modern world of communication and of aviation. And the Pacific, most inscrutable of oceans, lapping gently on the shore or roaring under the lash of typhoon, refuses to divulge whatever secrets of the future may be held beneath its broad surface.

The lands which lie on either side of this ocean and the islands which protrude here and there above its surface are matters of record in geography. What the peoples who inhabit these lands and islands have already said and done are matters of record in history. What they will do and say in the future are matters of speculation. Whatever they do or say, the deeds and words of one will affect in some manner the deeds and words of the other. Men have always had a curious habit of concerning themselves with each other's affairs. The authors of this book counsel restraint in the exercise of this curiosity.

"Let us (we might continue) concern ourselves no more with Japan in Manchuria than Japan concerned herself with us in, for example, Panama. Let us leave Japan alone in Asia as she will leave us alone in the Americas. Let us (most radical of all thoughts) mind our own business. . . ."

But, apparently, they despair of our exercising such restraint.

"So we might question ourselves, and so we might decide; but so, except by miracle, we shall not."

Whereupon, political philosophizing is put aside in favor of a realistic survey that amounts almost to a technical estimate of the situation and the formulation of a war plan based upon it. In this respect, *War in the Pacific* is designed, first, to acquaint the ordinary citizen of the United States with what his navy is and how it works; second, to compare it with Japan's; and third, to discuss the strategy of the Pacific and to outline in story form one way a clash between the two navies could be worked out.

Except for a somewhat florid style and minor inaccuracies, the chapters devoted to the fighting ships are excellent. Ships of the Line, Cruisers and Destroyers, "Pigs" and Auxiliaries are the title heads of these chapters in which are discussed the size, speeds, and capabilities of

the various type ships which go to make up a fleet. The ancient conflict of armor, speed, and cruising radius is explained. Why some ships have gun power and others speed is made clear. Each chapter includes an estimate and comparison of our own strength in each class with that of Japan. These comparisons are enlightening. Each navy provides itself with the equipment visualized as best fitting its own needs.

As regards aviation, the authors have taken sides in the controversy of airplane versus battleship, and have awarded the victory, at least temporarily, to the battleship. The American system, whereby naval aviation is a part of the fleet rather than a separate force, is well expounded in the chapter "The Wings of the Fleet." Interesting in this connection are recent newspaper dispatches which carried an admiring comment on this system from England, expressing regret at the clumsiness with which the Royal Air Force functioned when operating with the fleet.

But a navy is more than just the sum of the men and ships which it comprises. An apt comparison is to liken it to a living organism. The bony structure which supports the organism and does the actual work consists of the ships themselves. The nerves, and the sensory organs are the radio and the officers and men. The brain, and other nerve centers, receiving information, evaluating its significance, and sending out orders, are the various commanders and their staffs. A chapter on "The Fleet" describes the training in coordination, in gunnery, in maneuvers, in logistics necessary to make this organism function with the coordinated rapidity, skill, and power of a tennis player or world's champion boxer.

And just as any living organism requires a safe place in which to rest, to feed, and to heal its wounds, so navies require bases. Here begins the real analysis of the strategy of the Pacific. In a war with Japan, it is inconceivable that the two fleets would steam boldly toward each other until, meeting in the middle of the ocean, each would pound the other to pieces. In "Behind the Fleets" and "The Geographic Elements" are listed American and Japanese naval bases and possible naval bases, the protection, existing and possible for each, the radius of action each would afford, and the degree of pressure which either navy could bring to bear on the other.

Besides the geographic factors and the location of naval bases, many other elements of the total situation affect the strategy of the Pacific. The alignment of other forces for and against each belligerent, the proximity of Russia and China and the probable attitude of each, the position of England in the Far East and the action her interests will dictate, are among the political factors involved. The social and psychological factors are evaluated

in the following comparison between the Japanese and the Americans:

"The life to which he (the Japanese) is accustomed . . . is rigid, disciplined, patriarchal. He has a reverence for the state and for authority. . . . He has a Spartan and instinctive aptitude for the military existence. . . .

"The contrast between this Asiatic war machine . . . and the opportunistic, undisciplined conglomerate which is the United States, is striking. Resilient, sentimental, critical, individualistic, our people are without military instincts or background."

Another factor remains, the economic element. A study of this factor almost convinces one that Japan cannot wage war at all.

"A full 60 per cent of her raw materials are imported, and in time of war she must be able to bring in oil and cotton and rubber and nickel and iron—or she must sue for peace."

However, without committing themselves as to just how it could come to pass or as to just what justifications, provocations, or combinations of circumstances could force such a situation, the authors take us into the war itself.

"And now, by combining these elements . . . we may . . . comprehend the nature of a conflict destined almost inevitably to be a war of attrition, a long and disheartening test of peoples, or organizations, of resources. . . .

"With the outbreak of hostilities, Japan reaches out—a very little way—to grip Guam and the Philippine Islands. This done, she sits tight on her home grounds while we, committed without choice to an offensive rôle assume the appalling task of bringing our armed power to bear in the western Pacific."

How to set about this task and how to finally accomplish it in the roar of guns, the sinking of ships, even in a marriage of convenience with Russia, is a story the readers will want to learn for himself. It may or may not be the way it would actually work out. But it is realistic enough to warn every citizen of his duty to his country; first, to see that it be strong; second, that it keep its head level in its dealings with other nations.

THE CAUSES OF WAR. The Telegraph Press, New York, 1935. 5" x 7½". 104 pages. \$1.50.

*Reviewed by Colonel P. D. Bunker*

This book is interesting and, in spots, highly amusing. It is a collection of radio speeches which were made in the Tight Little Isle by eight of its prominent citizens over the network of the British Broadcasting Corporation.

After reading it you will be about where you started but you will have had a pleasant journey.

*The Causes of War!* What a scope for a ten-minute radio talk! Bad enough to have only one war to deal with in that short time. A bibliographer in the Library of Congress once started to list the works published on the causes of the World War alone. At last accounts, some six years ago, his bibliography included over ten thousand items. That these radio speakers performed as well as they did is proof that their fame is earned.

The Very Reverend Inge starts the party by saying that Fear is the principal cause of war. He avoids dogmatic statements, cleverly putting his thoughts in the form of searching questions for the listener to answer. "Are we to promise to take part in another Continental war if . . . Japan wishes to consolidate a protectorate over Manchuria?" The Dean carefully avoids announcing a cure-all but, perhaps because it is expected of him, he ends on a note boosting the efficacy of prayer.

Sir Norman Angell says that any nation which runs into a dispute and, refusing to arbitrate, goes to war over the matter is a common enemy and that if the rest of the world should crack down on that nation and make its course unprofitable and as hard and difficult as possible "then we should all be safer, better defended and nearer to the establishment of peace." (I told you the book was amusing in spots.)

Lord Beaverbrook calls the turn on the League of Nations thusly: "It can offer us no guarantee of peace. It can only promise collective action against Germany in the event of war." He is for Isolation. Same as the United States.

He makes out a good case, too, but he fails to convince Sir Austen Chamberlain whose cure for war is the same as Balfour's was—to knit together "the nations most immediately concerned and whose differences might lead to a removal of strife, by means of treaties formed with the sole object of maintaining, as between themselves, an unbroken peace. Within its limits no quicker remedy for our present ills can easily be found, nor any surer safeguard against future calamities." (Waddy mean, m'lord, "within its limits?")

Major Douglass says that military war is only an intensification of economic war. Economic war starts with our attempt to capture foreign markets in order to keep our citizens at work. The best way out, says the Major, is to adopt his plan of Social Credit which he names the National Dividend. No unemployment, no war.

Sir Josiah Stamp discourses pleasantly, tritely, and inconclusively on the economic causes of war. Skip it. Mr. G. D. H. Cole gets all excited over the way in which the wicked munitions companies stir up war simply to hike up their dividends—and quotes the Nye Committee as proof. If he would only stop to inquire what percentage of income the Du Ponts (for example) derive from munitions of any and all kinds and what percentage from

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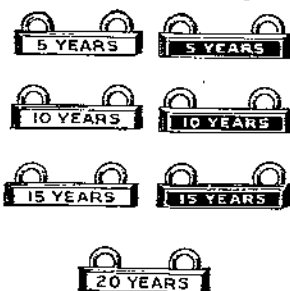
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paints and other peaceful products, he would probably change his tune.

Mr. Aldous Huxley's talk alone is worth the price of admission. He gently pans excessive Nationalism. Being a philosopher he has few illusions as to the present state of development of what is optimistically called the human intellect; he thinks that we shall probably blunder along in the future just about as we have done in the past. The only chance he sees of unifying the alleged human race and thereby stopping its internecine wars and bickerings is to stage an invasion from Mars. (And would that be a war!) It is all very sad.

THE KEYPOINT OF THE MARNE. By Colonel E. L. Butts, U.S.A., Menasha, Wis.: George Banta Publishing Co. 145 pages with maps and sketches. \$.75.

In this little volume, Colonel Butts sets down his experiences as commander of the 30th Infantry during the Germans' 1918 thrust at the Marne. His style is at once simple and vigorous.

Colonel Butts elects to treat his subject largely from the troop-leading point of view. The vital realities of combat preoccupy him. . . . his trouble in maintaining communications, his ceaseless effort to discover proper targets for his supporting artillery, and his chagrin over instances of non-coöperation. From the vivid picture he paints of a regimental headquarters in a major defensive action, the reader is afforded a true insight into battle with all its delays, confusion, destruction, and misunderstood orders. These, of course, are things that are never fully appreciated in peace.

This fine account of the 30th Infantry at the Marne originally appeared in 1930 but to date has reached a far smaller audience than it deserves. This is a sad fate for a combat narrative so rich in worthwhile lessons for officers of all grades.—C. W. T., Jr.

THE COMMAND AND GENERAL STAFF SCHOOL QUARTERLY. Command and General Staff School, Fort Leavenworth, Kansas. Subscription rate—One year in the United States and possessions, Cuba and Mexico—\$1.00.

This publication formerly known as *Review of Military Literature* contains a systematic review of current military literature, through cataloging articles of professional value, in selected foreign and domestic military and naval periodicals. Articles from foreign periodicals are treated by translations of titles and digests of contents. A "Library Bulletin" Section lists books, recently accessioned, which are of particular significance.

The purpose of this publication is to serve as a guide to modern military tendencies and to inspire vigorous thought on the subjects treated.

*The Quarterly* is prepared in an excellent manner, accomplishes its purpose and is well worth the consideration of all officers and students of military subjects.

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